



## ENVIRONMENTAL ASSESSMENT WORKSHEET

# Pieper Property Residential Development

Jordan, Scott County, MN

NOVEMBER 29, 2021

PREPARED FOR:

PREPARED BY:

**Westwood**

# ENVIRONMENTAL ASSESSMENT WORKSHEET (EAW)

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## Pieper Property Residential Development, Jordan

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# ENVIRONMENTAL ASSESSMENT WORKSHEET (EAW)

## Pieper Property Residential Development, Jordan

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at: <http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm>.

The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

**Cumulative potential effects** can either be addressed under each applicable EAW Item or can be addressed collectively under EAW Item 19.

**Note to reviewers:** Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

### 1. Project Title Pieper Property Residential Development EAW, Jordan

#### 2. Proposer

JMH Land Development  
 Contact Person: Mark Sonstegard  
 Title: Vice President of Operations  
 Address: 650 Quaker Avenue  
 Jordan, MN 55352  
 Phone: (952) 452-9569  
 Fax:  
 E-mail: [mark.sonstegard@jmhland.com](mailto:mark.sonstegard@jmhland.com)

#### 3. RGU

City of Jordan  
 Contact Person: Tom Nikunen  
 Title: City Administrator  
 Address: 210 East First Street  
 Jordan, MN 55352  
 Phone: (952) 492-7934  
 Fax: (952) 492-3861  
 E-mail: [tnikunen@jordanmn.gov](mailto:tnikunen@jordanmn.gov)

#### 4. Reason for EAW Preparation (check one)

##### Required:

- ☐ EIS Scoping  
☒ Mandatory EAW

##### Discretionary:

- ☐ Citizen Petition  
☐ RGU Discretion  
☐ Proposer Volunteered

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s): Part 4410.4300 Subp. 19D. - Residential Development.

#### 5. Project Location

County: Scott County, Minnesota

City/Township: Jordan

PLS Location (1/4, 1/4, Section, Township, Range): T114N, R24W, S24/S25

Watershed (81 major watershed scale): Minnesota River-Shakopee (33)

GPS Coordinates: 44.659°, -93.650° (Project Center)

Tax Parcel Numbers: 109240240, 109240260, 109250040, 109250030

##### **At a minimum attach each of the following to the EAW:**

- County map showing the general location of the project; See **Exhibit 1**.
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and **Exhibit 2**.
- Site plans showing all significant project and natural features. See Concept Site Plan (**Exhibit 3**), land use and zoning maps, and natural feature mapping (**Exhibits 4-10**).



## 6. Project Description

- a. *Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).*

The Pieper Property Residential Development is proposed on 108.7 acres of developable land in Jordan, Minnesota. Land use surrounding the project includes open space, single-family and multifamily residential, and institutional uses. The project will include townhomes, villas, and single-family residences for a total of 384 housing units and include trails, parkland, and stormwater ponds. The total project site is approximately 232.3 acres in area. About 123.6 acres would remain undeveloped, with about 80 acres being conveyed to the city.

- b. *Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.*

JMH Land Development (developer) is proposing construction of a new low-density residential neighborhood on 108.7 acres of primarily agricultural land. The proposed project is generally located south of the Minnesota River and U.S. Highway 169, on the west side of Jordan (**Exhibits 1 & 2**). See EAW Section 9 for details on the annexation of the project site from St. Lawrence Township to the city of Jordan.

The total project site is approximately 232.3 acres and includes three parcels. About 123.6 acres would remain undeveloped, with the northernmost parcel (about 80 acres) being conveyed to the city. Project development will convert approximately 108.7 acres of agricultural fields to streets, homes, lawns, landscaping, parkland, trails, sidewalks, and stormwater ponds as shown on the Concept Site Plan (**Exhibit 3**).

The project will include construction of up to 70 townhome units, 118 villa units, and 196 single-family homes for a total of 384 dwelling units. The Concept Site Plan proposes an overall site net density of approximately 3.5 dwelling units per acre, consistent with the Low Density Residential (3-8 units/acre) category in the city's Comprehensive Plan.<sup>1</sup> The site plan generally shows attached townhomes and villas in the eastern half of the project site along the roadways, and single-family homes in the remaining western portion of the site. From these areas, detached single-family lot sizes transition from smaller (55 feet wide) to larger (65 feet wide) towards the western edge of the site.

The project layout includes internal sidewalks and trails along Aberdeen Avenue and Old Highway 169. The trail system will connect with the existing trail along Aberdeen Avenue and to future trails along Old Highway 169 and the north-south realigned portion of Beaumont Boulevard. As a future collector street, Beaumont Boulevard will have a trail on both sides. A series of stormwater ponds will be constructed throughout the project site and will be designed to meet all city standards for onsite and regional surface water management. All lots are proposed to be constructed outside of the FEMA floodplain and regulated floodway areas located in the northern undeveloped portion of the site. The natural features in and around the floodplain area will be accessible and visible to the public via designated overlook parks along the east-west

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<sup>1</sup> City of Jordan. 2020. Comprehensive Plan. Approved April 20, 2020. Available at: <https://jordanmn.gov/wp-content/uploads/2020/08/Comp-Plan-2040-Section-1.pdf>

portion of Beaumont Boulevard and the existing Scott County Sno Trail that runs along U.S. Highway 169. An approximate 5.1-acre park is proposed in the north-central portion of the development. The park will be dedicated to the city, as required in city code, and will connect to the proposed sidewalk and trail system that extends throughout and around the site.

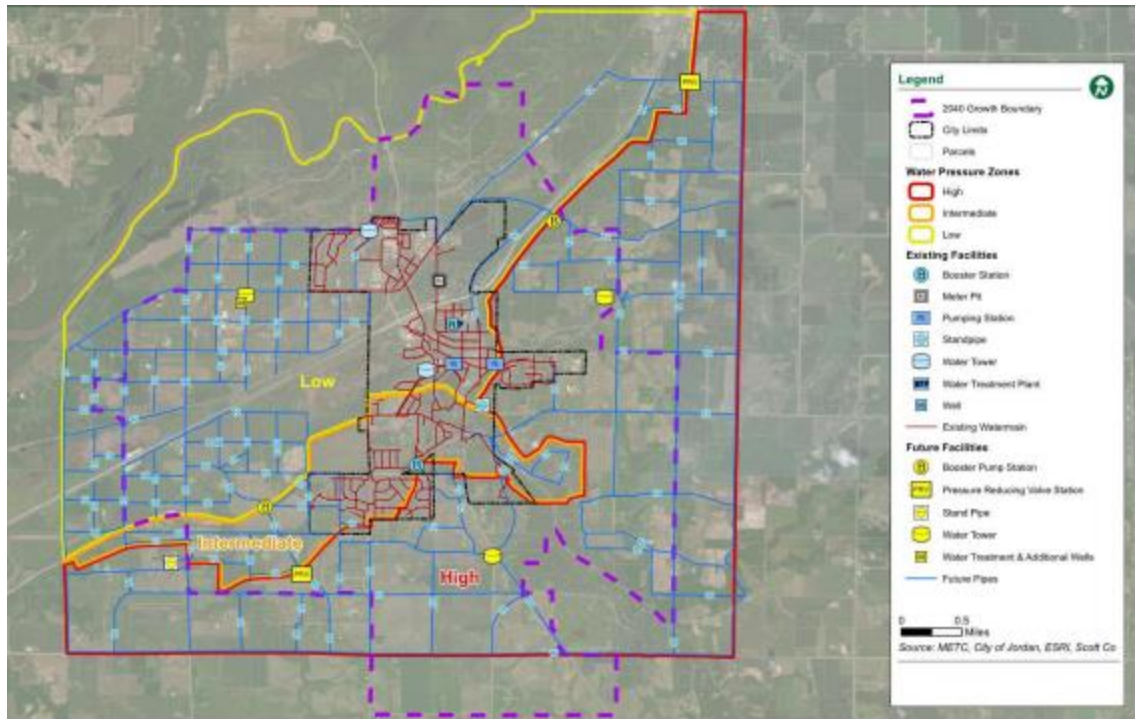
Public and private infrastructure improvements will be constructed in association with this development. These include but are not limited to internal roadways, sidewalks, trails, stormwater systems, electrical lines, telephone lines, and extension of sanitary sewer and water supply systems. Each residential unit will be served by city of Jordan sanitary sewer and water systems. No on-site sewage systems and no private wells are proposed.

As identified in Chapter 3 (Transportation) in the city's Comprehensive Plan, CR 66 (Old Highway 169) is under the jurisdiction of Scott County and Aberdeen Avenue, along the eastern project boundary, is under the jurisdiction of the city. Beaumont Boulevard is a gravel township road that will become a (paved) roadway under the jurisdiction of the city as part of the orderly annexation process.

The project will include several entry points from Aberdeen Avenue, CR 66 (Old Highway 169), and Beaumont Boulevard. The main entrance will be from Aberdeen Avenue and include a two-lane entrance with a planted median. The second entrance from Aberdeen Avenue will be 34 feet wide with a 60-foot-wide right-of-way that aligns with Ridge Street to the east. Two entrances are also proposed from Old Highway 169 including a two-lane entrance with a planted median that aligns with Prospect Pointe Road to the south, and from a realigned and paved Beaumont Boulevard. The existing Beaumont Boulevard right-of-way would be partially vacated from Old Highway 169 for about 250 feet before it realigns with the existing road. The project proposer, city, and county will coordinate the timing of the realignment of Beaumont Boulevard.

The city of Jordan owns and operates its own wastewater facility and is not part of the Metropolitan Council's wastewater treatment system. The project is located in the Syndicate Street Sewer District as described in the city's Wastewater and Comprehensive Sewer Plan (Chapter 4 of the 2020 Comprehensive Plan). The Syndicate Street interceptor's current service areas are completely within the 2040 Planning Boundary, which includes the project site. Existing stubs are located east of the project site at Sunset Drive and Aberdeen Avenue and at Old Highway 169 and Aberdeen Avenue. The existing Syndicate Street interceptor sewer has adequate capacity to accept flow with the extension of 8-inch sanitary sewers. The Southwest Interceptor, located north of U.S. Highway 169 and the project, has a design flow of 13.1 million gallons per day and conveys all current and future sewer flow from the Syndicate Street District. Municipal sewer service for the project will be achieved through new trunk collector sewers that will be extended to connect with a tributary spur from the Southwest Interceptor west of Delaware Avenue. The city's wastewater treatment facility will receive wastewater from the Southwest Interceptor, treat it, and then discharge it to Sand Creek, which flows to the Minnesota River.

Existing watermain are located east of Aberdeen Avenue and south of Old Highway 169 (**Figure 1**). These watermain are associated with the River Ridge, Stonebridge, and Arborview residential developments. Future 10- and 12-inch pipes are shown west and south of the project site. The project proposer will coordinate the construction of and connections to the municipal water supply system with the city.



**Figure 1: Existing and Proposed Water Distribution System**

The project site is located in an area of Low water pressure. There is no safety concern regarding the reduced pressure, and individual homes that may experience less than desired water pressure in upper-level bathrooms can be individually remedied using pressure boosters to support water pressure. The project proposer is aware of the reduced pressure zone, and is prepared to outfit individual homes, as needed, to address water pressure concerns that might arise.

Construction will entail moving an estimated 400,000 cubic yards of soil. Approximately 120 acres will be graded for streets, house pads, and stormwater features. The site will be graded to balance, no import or export of material is anticipated. Construction activities are not anticipated to require dewatering based on observations made during the Geotechnical Evaluation. The depth to groundwater in the project vicinity ranges from approximately 25 to 145 feet below land surface. If water appropriation is required, the developer will obtain the required groundwater appropriation permits. Best management practices will be implemented during and after construction to protect water quality and reduce the potential for soil erosion and sedimentation.

There will be no modifications to existing equipment or industrial processes.

The existing farmstead will not be demolished and will remain within the project site. As mentioned above, about 250 linear feet of Beaumont Boulevard will be realigned and the entire road will be paved during project construction.

Grading and utility installations within the project site are anticipated to be constructed in six phases from the northeast to southwest over 6 years with the first phase starting in 2022 with full build out by 2027. Each phase will include a mix of product styles that will provide variety in housing choices for buyers. This phasing schedule is an estimate and will ultimately depend upon market demand and city approvals.

Potential adverse effects on the environment will be minimized by preserving 123.6 acres of land that includes the large wetland complex and bluff area located in the northern portion of the site and creating approximately 13.3 acres of open space in the form of parkland, trail corridors, and stormwater ponds. The project will not impact wetlands to accommodate project construction. The project will include landscape plantings and buffers, with front, side, and rear yard setbacks along adjacent roadways to minimize potential visual and noise impacts.

c. *Project Magnitude:*

Total Project Acreage (gross acreage)	232.3
Total Project Acreage (net developable)	108.7
Total Project Acreage (undevelopable)	123.6
Total Number of Residential Units	384
Twinhome Units (attached)	70
Villas (attached)	118
Single Family (unattached)	196
Commercial Building Area (in square feet)	N/A
Industrial Building Area (in square feet)	N/A
Institutional Building Area (in square feet)	N/A
Other Uses – specify (in square feet)	N/A
Structure Height(s) – residential units; two story maximum	35 feet

d. *Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.*

The purpose of the project is to meet the demand for residential housing units within the city of Jordan. The project will be carried out by JMH Land Development, a private entity.

e. *Are future stages of this development including development on any other property planned or likely to happen? ☐ Yes ☒ No. If yes, briefly describe future stages, relationship to the present project, timeline, and plans for environmental review.*

No future stages of this development are planned.

f. *Is this project a subsequent stage of an earlier project? ☐ Yes ☒ No. If yes, briefly describe the past development, timeline, and any past environmental review.*

The project is not a subsequent stage of an earlier project.

## 7. Cover Types

*Estimate the acreage of the site with each of the following cover types before and after development:*

Pre-construction land cover acreages were estimated based on the Minnesota Land Cover Classification System and field delineated wetlands (**Exhibit 4**). Post-construction land cover was estimated based on engineering and preliminary site planning.

**Table 7.1: Estimated Before and After Cover Types**

General Land Cover	Before (acres)	After (acres)
Wetlands (WB-01)	79.98	79.98
Streams (WC-01 and WC-02)	0.08	0.08
Wooded/Forest	27.86	19.86
Brush/Grassland	5.54	5.54
Cropland/Agricultural	114.85	0.0
Lawn/Landscaping	0.0	14.8
Impervious Surface/Developed (homes, driveways, roads, sidewalks, trails)	4.02	103.83
Stormwater Pond	0.0	8.24
Other – describe	0.0	0.0
<b>Total</b>	<b>232.3</b>	<b>232.3</b>

## 8. Permits and approvals required

*List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

**Table 8.1: Permits and Approvals Required**

Unit of Government	Type of Application	Status <sup>1</sup>
City of Jordan/St. Lawrence Township	Annexation Agreement	In process
City of Jordan	Concept Plan Approval/Design Review	In process
City of Jordan	Preliminary Plat Application	To be applied for
City of Jordan	Final Plat Approval	To be applied for
City of Jordan	EAW Process	In process
City of Jordan	Planned Unit Development Application	To be applied for
City of Jordan	Grading and Excavation Permit	To be applied for
City of Jordan	Application for ROW/Street Excavation Permit	To be applied for
City of Jordan	Application to Connect to City Water System & Sewer System	To be applied for
City of Jordan	Building Permit	To be applied for
City of Jordan	Plumbing Permit	To be applied for
City of Jordan	Mechanical Permit	To be applied for
City of Jordan	Wetland Boundary Confirmation	In process
City of Jordan	Wetland Conservation Act Permit	To be applied for (if needed)
City of Jordan	Surface Water Management Permit	To be applied for

**Table 8.1: Permits and Approvals Required**

Unit of Government	Type of Application	Status <sup>1</sup>
City of Jordan	Stormwater Management Review	To be applied for
Scott County	Driveway/Access Permit	To be applied for (if needed)
Scott County	Utility Right-of-Way Permit	To be applied for (if needed)
Scott County	Landscape Right-of-Way Permit	To be applied for (if needed)
Metropolitan Council	Sanitary Sewer Connection Permit	To be applied for
MN Department of Health	Water Main Extension Approval	To be applied for
MN Department of Natural Resources	Appropriation/Dewatering Permit	To be applied for (if needed)
MN Pollution Control Agency	Sanitary Sewer Extension Approval	To be applied for
MN Pollution Control Agency	NPDES/SDS General Permit	Covered under general permit; submit NOI prior to construction.
U.S. Army Corps of Engineers	Wetland Boundary Confirmation	In process
<sup>1</sup> The project proposer will apply for and receive applicable permits prior to project construction.		

*Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19.*

## 9. Land Use

### a. Describe:

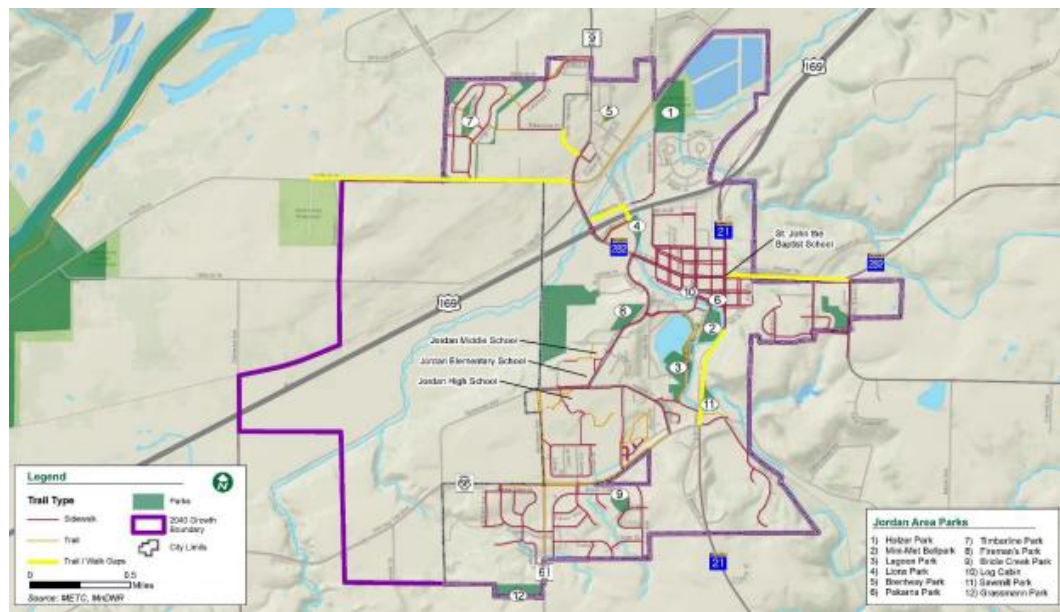
- i. *Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.*

Existing land use within, and adjacent to, the project site is depicted on **Exhibit 5**. The present land use within the project site is undeveloped open space and cultivated cropland. Historical images reviewed from Google Earth and John R. Borchert on-line map library sources revealed that the project area has remained relatively unchanged since 1937, except for areas north of the bluff. Areas north of the bluff were previous used as cultivated cropland in 1937; however, this portion of the project site was returned to open space land between 1937 and 1957.

Existing land uses of abutting properties consist primarily of large areas of undeveloped lands to the north, a senior living complex, and existing residential developments located to the south, southeast, and east. A recently reclaimed gravel mine is located to the west. Historical land use imagery revealed that portions of the gravel mine began operations between 1957 and 1970. Aerial photography shows that reclamation efforts started in 2018 and a majority of the site was reclaimed by 2020. Jordan Elementary School, Jordan Middle School, and Jordan High School are located across Aberdeen Avenue directly east north-east of the proposed project. Construction of Jordan High School began in 1965, with a new addition completed in 1970. Construction on Jordan Elementary School began in

1976. During the late 1990's and into the early mid 2000's, residential developments were constructed to the east, southeast, and south of the project site.

There are currently no designated parks or recreation areas within the project site (**Figure 2**). The nearest parks include Elementary School Park, Middle School Park, and open space areas and recreational fields associated with the High School. Several Jordan Area Parks are located in close proximity to the project. Grassmann Park is located 0.5 mile south of the project and offers playground equipment, benches, sidewalks, a recreational field, and open space areas. Fireman's Park is located 0.5 mile east of the project and offers scenic trails and benches. Bridle Creek Park is located 0.6 mile southeast of the project and contains playground equipment, a recreational court, trails, benches, and open space areas. A Scott County Sno Trail is located north of the project site. The nearest trail segment is about 500 feet north of the project site and runs along the southside of Highway 169.



**Figure 2: Existing and Future Trails and Parks**

### **Prime and Unique Farmlands**

According to the USDA NRCS Web Soil Survey, three of the thirteen soil types found within the project site are prime farmland. Soil types are shown on **Exhibit 6**. The site includes the following farmland classifications: Not Prime Farmland (150.1 acres; 64.6 percent), Farmland of Statewide Importance (43.1 acres; 18.6 percent), and Prime Farmland (39.1 acres; 16.8 percent). Table 9.1 details the farmland classification by soil type.

**Table 9.1: Farmland Classification**

Map Unit Symbol	Map Unit Name	Acres	Farmland Classification
DaA	Dakota loam, 0-2% slopes	6.4	All areas are prime farmland
DbB	Dickman sandy loam, 2-6% slopes	0.5	Farmland of statewide importance

**Table 9.1: Farmland Classification**

<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Acres</b>	<b>Farmland Classification</b>
EAA	Estherville loam and sandy loam, 0-2% slopes	42.2	Farmland of statewide importance
EAB	Estherville sandy loam, 2-6% slopes	0.4	Farmland of statewide importance
EbB2	Salida gravelly sandy loam, 0-6% slopes, moderately eroded	31.6	Not prime farmland
FA	Faxon silty clay loam, 0-2% slopes	2.7	Not prime farmland
HeC2	Sparta loamy fine sand, 6-12% slopes	4.8	Not prime farmland
KaA	Kasota silt loam, 0-2% slopes	32.4	All areas are prime farmland
KaB	Kasota silt loam, 2-6% slopes	0.3	All areas are prime farmland
PaB	Palms muck, sloping, 2-12% slopes	13.8	Not prime farmland
PbA	Houghton muck, 0-1% slopes	60.1	Not prime farmland
Ta	Terrace escarpments	27.0	Not prime farmland
TbE	Terril loam, 18-25% slopes	10.1	Not prime farmland
<b>Total</b>		<b>232.3</b>	

Prime farmlands consist of land that has the best combination of physical and chemical characteristics for producing food, feed, forage, and oilseed crops. According to the NRCS, prime farmlands have “an adequate and dependable water supply from precipitation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content and few or no rocks.” This does not mean all soils listed as prime farmland produce exceptionally high crop yields. No farmland preservation measures have been considered.

- ii. *Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.*

### **Annexation**

The project site is currently located in St. Lawrence Township and is within the city of Jordan 2040 Growth Boundary. The 2040 Growth Boundary includes areas currently outside the city boundary that will be annexed into the city. The annexation of the project site from the township to the city is outlined in the joint resolution between the city of Jordan and Town of St. Lawrence (City Resolution No. 6-29-2017 and Township Resolution No. 5-11-2017), as amended by City Resolution No. 07-52-2020 and Township Resolution No. 20-1.

In addition, a Predevelopment Agreement between the city and the developer outlines the development of the property including, but not limited to, dedication of land for public use, traffic improvements, right-of-way standards, and tree preservation. As part of the Predevelopment Agreement, the developer requested to have the project site annexed to the city upon acquisition of all or portions of the three parcels pursuant to the joint resolution.



**Comprehensive Plans**

The Metropolitan Council has adopted the Thrive MSP 2040 Plan to ensure orderly, economic development of the Twin Cities Metropolitan Area in relation to regional infrastructure for transportation, water resources, and regional parks and open space. In 1996, the Council established a Metropolitan Regional Blueprint, which serves as the framework for development for the Twin Cities seven-county area.

The city of Jordan 2040 Comprehensive Land Use Plan (Comprehensive Plan) must address not only local issues but must also be consistent with regional benchmarks included as part of Thrive MSP 2040 for population, household and employment growth, transportation, housing, and natural resources. The Thrive MSP 2040 Plan designates the city of Jordan as a Rural Center and St. Lawrence Township as Diversified Rural community. The Rural Center designation is based on the city's commercial, employment, and residential activity centers serving rural areas in the region. Challenges for Rural Center communities include orderly and economic growth to best utilize existing infrastructure prior to extension of new services outside of the Rural Center. The Diversified Rural community designation is based on protecting land for rural lifestyles and long-term urbanization. Upon annexation, the project will be part of the city under the Diversified Rural designation.

As described in the Comprehensive Plan, the city and Met Council anticipate significant population growth with an estimated increase in the number of households from 2,500 in 2020, to a forecasted 4,700 households by 2040 (note the number of households in 2020 and 2040 are "projected" and do not represent the actual number of households).

Residential housing goals for the city of Jordan include retaining the spirit of a small town with a family-oriented focus. The future land use plans will support the city's logical and orderly expansion, while retaining the downtown as a gathering place for residents. New residential development goals include proper planning to support neighborhood unity and cohesiveness while protecting the integrity of the natural environment and providing access to other community amenities. The city of Jordan Comprehensive Plan includes numerous policies to achieve their new residential development goals. Policies include providing a variety of lifecycle housing for the diverse needs of the community, incorporating natural features into new residential neighborhoods while protecting environmentally sensitive landscapes, and requiring development of parks and trails.

The city of Jordan 2040 Comprehensive Plan desires future construction in Low Density Residential Developments to account for a minimum gross density of three (3) units per acre and a maximum of eight (8) units per acre.

The proposed project is located in the Low Density Residential Future Land Use District. Development goals for Low Density Residential areas are focused on construction of predominantly single-family detached housing. The city envisions lower density suburban style developments around the city's outskirts, as well as slightly denser traditional small town style single-family residences near the city's core.

The proposed project conforms to the goals and policies discussed in the city's 2040 Comprehensive Plan. The proposed housing units correspond to the location and extent of housing densities in the future land use guide plan, providing compatible low-density housing units in a key annexation area. The project will have a net housing density of 3.5 units per developable acre. The project conforms to the future land use plan by providing a

residential and development consistent with density guidelines and by incorporating the specific objectives of the Comprehensive Plan. The project will support neighborhood unity by creation of a public park and trails, and proximity to the public schools. A variety of lifecycle housing options is proposed including twinhomes, villas, and single-family detached housing units with different lot sizes. The project will incorporate natural features into the development by constructing trails and sidewalks that connect with the proposed park that will be centrally located. Two overlook parks are proposed north of Beaumont Boulevard. The project has minimized the number of housing units in the northern portion of the project area to protect environmentally sensitive landscapes.

- iii. *Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.*

The proposed development is consistent with the city of Jordan's 2040 Comprehensive Plan, which guides the area for Low Density Residential. Although the city's Existing Zoning Map (**Exhibit 7**) does not include the project site, it will be annexed into the city prior to development.

The project site includes shoreland and bluff overlays, and floodplain zones. The city's Shoreland Ordinance applies to the MNDNR Public Water Watercourse (PWI ID 70017a) located in the northern portion of the project site. The city defines the Shoreland Overlay District to include the area within 1,000 feet from the ordinary high water mark of a lake, pond, or flowage; and 300 feet from a river or stream, or the landward extent of a floodplain, whichever is greater. The Shoreland Overlay District extends 300 feet on either side of the PWI watercourse (**Exhibit 7**). No development will occur within the Shoreland Overlay District as the nearest proposed residential lot is located approximately 700 feet from the overlay boundary.

The city's Shoreland Ordinance defines a "bluff" as a topographic feature such as a hill, cliff, or embankment that is wholly or partially located in a shoreland area; has a slope that rises at least 25 feet above the ordinary high water level of the waterbody; has a grade of the slope from the toe of the bluff to a point 25 feet or more above the ordinary high water level that averages 30 percent or greater; and the slope must drain towards the waterbody. The Shoreland Ordinance protects bluffs and the land located within 20 feet from the top of the bluff (Bluff Impact Zone) and requires a structure setback of 30 feet from the top of the bluff.

The southern portion of the Bluff Impact Zone extends south across the existing farmstead, Beaumont Boulevard, and into the agricultural field (**Exhibit 7**). Based on two-foot contours, the bluff line appears to be north of Beaumont Boulevard, west of the existing farmstead, and generally follows the tree line (**Exhibit 8**). About 15 single-family rear lots will overlay the bluff and Bluff Impact Zone. No Grading, clear cutting, removal of vegetation, or other land disturbing activities will occur within the Bluff Impact Zone. All structures will be set back a minimum of 30 feet from the top of the bluff. Accessory structures will be set back a minimum of five (5) feet from the top of the bluff. Any disturbances proposed in close proximity to the bluffs will have best management practices included in the stormwater pollution prevention plan.

According to FEMA Floodplain mapping (accessed October 2021), the northern portion of the project area contains a Regulatory Floodway, Zone AE, with a base flood elevation of 750 feet (**Exhibit 8**). Areas in the Regulatory Floodway must be reserved in order to

discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. All project infrastructure is sited outside of the FEMA flood zone and construction activities will not impact the flood zones. Stormwater will be properly managed on site in accordance with the information presented in Item 11, 2.ii.

The PWI wetland protected by the DNR is also noted to be a Natural Area Corridor.<sup>2</sup> No impacts are anticipated, as all project infrastructure is sited outside the Natural Area Corridor. No other special use districts, designated wild or scenic rivers, or trout streams are within the project area. The nearest designated trout stream is Assumption Creek (M-055-017) located 10.7 miles north of the project. There are no critical areas or agricultural preserves within the project area.

- b. *Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.*

The 2040 Comprehensive Plan depicts the project site and immediate properties to the west and south as Low Density Residential guided land uses. Other lands to the west are guided for Medium Density Residential at eight (8) to fourteen (14) units per acre. The focus of Low Density Residential guidance is to support orderly and economic growth with respect to city infrastructure and services. Construction of a variety of life cycle housing will create attractive, pedestrian-oriented, low density, and environmentally and economically sustainable communities in close proximity to public schools. Construction of residential development expanding outward from the city's core is a desirable land use as described in the 2040 Comprehensive Plan. The city has accounted for the potential residential development throughout the planning process.

The proposed project is consistent with the Low Density Residential goals and policies to help the city realize its vision for the area. The development will provide residential development within convenient walking and biking distance of the Jordan public school system and will complement the nearby senior living complex and residential neighborhoods by providing additional housing opportunities. Construction of walking trails, a park, and overlook areas will provide future residents and nearby residents with new recreational opportunities. In addition to the numerous improvements proposed for the property, landscaping is anticipated to enhance viewsheds from the adjacent land uses.

- c. *Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.*

Incompatibility of land uses is not anticipated as discussed in Section 9b.

## **10. Geology, Soils and Topography/Land Forms**

- a. *Geology – Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.*

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<sup>2</sup> Scott County. 2021. Geographic Information Systems (GIS), ScottGIS3 (SG3). Available at: <https://gis.co.scott.mn.us/sg3/>

### **Bedrock Geology**

According to the Geologic Atlas of Scott County, C-17, Plate 2, bedrock geology beneath the project site consists of the St. Lawrence Formation<sup>3</sup>, which consists of very fine-grained sandstone and siltstone. The thickness of the St. Lawrence formation varies from 55 to 80 feet thick. Plate 5 shows the depth to bedrock is 50 to 200 feet from the land surface to the bedrock surface over most of the site. Depth to bedrock increases from north to south, with the greatest depths south of Beaumont Boulevard.<sup>4</sup>

### **Surficial Geology**

The Geologic Atlas of Scott County, C-17, Plate 3, shows the surficial geology consists of clay, silt, organic debris north of the bluff, and beds of silt loam, silty clay loam, fine-grained sand, and gravel/boulders at the base of the bluff. This area generally corresponds to the delineated boundary of Wetland WB-01. South of the bluff, surficial geology consists of the Richfield Terrace, which is about 160 feet above the floodplain and ranges in elevation from about 850 feet at Shakopee to about 880 feet at Belle Plaine.<sup>5</sup>

The pollution sensitivity of near surface materials is predominately high, with a rating of high over two-thirds of the southern portion of the site and low over one-third of the northern portion. There is a small area rated as moderate in the northernmost portion of the site around the wetlands. The sensitivity to pollution of near-surface materials is an estimate of the time it takes for water to infiltrate the land surface to a depth of 10 feet. Generally, areas of coarse-grained material have a higher sensitivity to pollution compared to areas of fine-grained material, except where special conditions (karst, bedrock at or near the surface, mining, and peatlands) occur. No special conditions are mapped within the project site.<sup>6</sup>

### **Aquifers**

Minnesota is divided into six groundwater provinces based on bedrock and glacial geology. The aquifers within these provinces occur in two general geologic settings: bedrock, and unconsolidated sediments deposited by glaciers, streams, and lakes. The Project is within the East-Central Province where surficial and buried sand and gravel aquifers are common. These aquifers are underlain by thick and extensive sandstone and carbonate (Paleozoic) and (Precambrian) sandstone aquifers.<sup>7</sup>

Depth to groundwater in the project area ranges from approximately 25 to 145 feet below land surface. According to published geologic information, the regional groundwater flow direction within the unconsolidated deposits in the project area is generally northwest towards the Minnesota River.<sup>8</sup> However, the local direction of groundwater flow may be affected by nearby streams, lakes, wells, and/or wetlands and may vary seasonally.

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<sup>3</sup> Runkel, Anthony C. and Mossler, John H. 2006. C-17 Geologic Atlas of Scott County, Minnesota. Plate 2-Bedrock Geology. Retrieved from University of Minnesota Digital Conservancy. Available at: <https://conservancy.umn.edu/handle/11299/58717>

<sup>4</sup> Runkel, Anthony C. and Tipping, Robert G. 2006. C-17 Geologic Atlas of Scott County, Minnesota. Plate 5-Bedrock Topography. Retrieved from University of Minnesota Digital Conservancy. Available at: <https://conservancy.umn.edu/handle/11299/58717>

<sup>5</sup> Lusardi, Barbara A. 2006. C-17 Geologic Atlas of Scott County, Minnesota. Plate 3-Surficial Geology. Retrieved from University of Minnesota Digital Conservancy. Available at: <https://conservancy.umn.edu/handle/11299/58717>

<sup>6</sup> Adams, Roberta. 2016. Pollution sensitivity of near-surface materials: St. Paul, Minnesota Department of Natural Resources, Minnesota Hydrogeology Atlas Series HG-02, report and plate. Available at: [https://www.dnr.state.mn.us/waters/programs/gw\\_section/mapping/platesum/mha\\_ps-ns.html](https://www.dnr.state.mn.us/waters/programs/gw_section/mapping/platesum/mha_ps-ns.html).

<sup>7</sup> MNDNR. 2021. Groundwater Provinces of Minnesota. Available at: [https://files.dnr.state.mn.us/waters/groundwater\\_section/provinces/2021-provinces.pdf](https://files.dnr.state.mn.us/waters/groundwater_section/provinces/2021-provinces.pdf)

<sup>8</sup> Kanivetsky, Roman and Palen, Barbara. 1982. C-01 Geologic Atlas of Scott County, Minnesota. Plate 6-Hydrogeology. Retrieved from University of Minnesota Digital Conservancy. Available at: <https://conservancy.umn.edu/handle/11299/58232>

### **Karst**

In Minnesota, surface karst features (sinkholes, caves, stream sinks, and karst springs) primarily occur where 50 feet or less of unconsolidated material overlie Paleozoic carbonate bedrock and St. Peter Sandstone. While the project site is located over areas where the depth to bedrock is less than 50 feet, no karst features are mapped in the vicinity of the site.<sup>9</sup> The nearest mapped karst prone feature is located about 3.5 miles north of the project site near the Minnesota River.

### **Topography/Land Forms**

Elevations on the site range between 850.8 to 865.7 feet above mean sea level in the southern portion (developed area), and between 745 to 865 in the northern portion (undeveloped area). Two-foot contour mapping shows the highest elevations generally occur in the wooded areas in the central portion of the project site, along Beaumont Boulevard.

- b. *Soils and topography – Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.*

### **Soils**

The USDA NRCS Web Soil Survey<sup>10</sup> indicates the project site includes 13 mapped soil units (see **Exhibit 6**). Table 10.1 summarizes several characteristics including erosion hazards, hydrologic groups, percent hydric, and drainage class.

**Table 10.1: Soils Classification**

<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Acres</b>	<b>Erosion Hazard<sup>1</sup></b>	<b>Hydrologic Group<sup>2</sup></b>	<b>Hydric Soil Rating</b>	<b>Drainage Class<sup>3</sup></b>
DaA	Dakota loam, 0-2% slopes	6.4	Slight	B	Nonhydric	Well Drained
DbB	Dickman sandy loam, 2-6% slopes	0.5	Slight	A	Predominantly Nonhydric	Somewhat Excessively Drained
EAA	Estherville loam and sandy loam, 0-2% slopes	42.2	Slight	A	Nonhydric	Somewhat Excessively Drained
EAB	Estherville sandy loam, 2-6% slopes	0.4	Slight	A	Predominantly Nonhydric	Somewhat Excessively Drained
EbB2	Salida gravelly sandy loam, 0-6%	31.7	Slight	A	Nonhydric	Excessively Drained

<sup>9</sup> Minnesota Department of Natural Resources. 2016. Minnesota Regions Prone to Surface Karst Feature Development. Available at: [https://files.dnr.state.mn.us/waters/groundwater\\_section/mapping/gw/gw01\\_report.pdf](https://files.dnr.state.mn.us/waters/groundwater_section/mapping/gw/gw01_report.pdf)

<sup>10</sup> USDA NRCS. 2021. Web Soil Survey. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

**Table 10.1: Soils Classification**

Map Unit Symbol	Map Unit Name	Acres	Erosion Hazard <sup>1</sup>	Hydrologic Group <sup>2</sup>	Hydric Soil Rating	Drainage Class <sup>3</sup>
	slopes, moderately eroded					
FA	Faxon silty clay loam, 0-2% slopes	2.7	Slight	C/D	Hydric	Poorly Drained
HeC2	Sparta loamy fine sand, 6-12% slopes	4.8	Severe	A	Nonhydric	Excessively Drained
KaA	Kasota silt loam, 0-2% slopes	32.4	Slight	C	Nonhydric	Well Drained
KaB	Kasota silt loam, 2-6% slopes	0.3	Moderate	C	Nonhydric	Well Drained
PaB	Palms muck, sloping, 2-12% slopes	13.8	Slight	B/D	Hydric	Very Poorly Drained
PbA	Houghton muck, 0-1% slopes	60.1	Slight	A/D	Hydric	Very Poorly Drained
Ta	Terrace escarpments	27.0	Not Rated	Not Rated	Nonhydric	Not Rated
TbE	Terril loam, 18-25% slopes	10.1	Severe	B	Nonhydric	Moderately Well Drained
<b>Total</b>		<b>232.3</b>				
<sup>1</sup> Slight = erosion is unlikely under ordinary climatic conditions; Moderate = some erosion is likely and that erosion-control measures may be needed; Severe = erosion is very likely; and Very Severe = significant erosion is expected. <sup>2</sup> A = high infiltration rate, low runoff potential; B = moderate infiltration rate; C = slow infiltration rate; and D = very slow infiltration rate, high runoff potential. <sup>3</sup> Drainage class refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed.						

**Topography**

As mentioned in EAW Item 10a, elevations on the site range between 850.8 to 865.7 feet above mean sea level in the southern portion (developed area), and between 745 to 865 in the northern portion (undeveloped area). Two-foot contour mapping shows the highest elevations generally occur in the wooded areas in the central portion of the project site, along Beaumont Boulevard.

Contour mapping indicates that the overall surface topography from the bluff generally slopes north towards the wetland complex, and areas south of the bluff are relatively flat with gentle slope toward the south.

**Soil Excavation and/or Grading**

It is anticipated that construction will entail approximately 400,000 cubic yards of earthwork and disturb 120 acres by grading activities. Soil will be graded for homes, driveways, streets, parkland, sidewalks, trails, and stormwater features. Because the project will involve disturbance of more than one acre of land, application for coverage under the National Pollutant Discharge

Elimination System/State Disposal System (NPDES/SDS) General Permit will be submitted to the MPCA prior to initiating earthwork on the site. This permit is required for discharge of stormwater during construction activity and requires that Best Management Practices (BMPs) be implemented. Erosion and sedimentation control BMPs related to stormwater runoff are discussed in greater detail within Item 11.b.ii.

Haugo GeoTechnical Services (HGTS) completed a Geotechnical Evaluation in April 2020 to evaluate the soils and groundwater prior to site development. HGTS completed eight standard penetration test borings to a depth of 20 feet. At the surface, the borings encountered native alluvial soils that extended to the depths of the borings. The alluvial soils consisted of silty sand, sandy silt, poorly graded sand with silt, and poorly graded sand that was brown in color. Groundwater was not encountered in any of the borings while drilling and sampling, or after removal of the auger from the boreholes. HGTS does not anticipate that groundwater will be encountered during grading activities. However, seasonal fluctuations in groundwater levels should be expected.

Boring information will be used going forward to inform proper site design and any necessary field accommodations to be implemented during project construction. Data from these borings, will be used to confirm final design assumptions in relation to groundwater levels across the site.

*NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.*

## 11. Water resources

- a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.
  - i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

### Wetland Delineation

Westwood Professional Services (Westwood) delineated surface waters within the project site on October 7, 2021. One wetland complex (WB-01) was identified totaling 79.98 acres, and two watercourses (WC-01 and WC-02) were identified totaling 0.08 ac (645 linear feet). The wetland and watercourses are shown on **Exhibits 4 and 9**. These features are not located within the developable portion of the project and will not be impacted.

Wetland WB-01 contains wet meadow, shallow marsh, and shrub-carr components. Sidehill seeps are present throughout the southern portion of the wetland and the southern wetland boundary is located noticeably higher in the landscape compared to the northern portion of the wetland. Both watercourses flow to the north where they eventually end in diffuse flow in Wetland WB-01.

PWI mapping shows one large Public Waters Wetland (PWI ID 220W) and one unnamed Public Waters Watercourse (PWI ID 70017a) within and adjacent to the project site (**Exhibit 9**). The PWI wetland corresponds to delineated Wetland WB-01. The watercourse is located about 75 feet

north of the project site and flows northeast into Sand Creek. According to Minnesota's Buffer Law and as shown on the MNDNR Buffer Map Viewer<sup>11</sup>, this watercourse requires an average 50-foot permanent vegetative buffer. Because this watercourse is about 70 feet north of the project site and will not be impacted, a vegetative buffer is not required.

NWI mapping identified three different wetland types within the project site including two freshwater emergent wetlands and one freshwater forested/shrub wetland. The wetlands generally correspond to delineated wetland WB-01. NWI mapping also shows the wetland complex extends east and west beyond the project site (**Exhibit 9**).

Three soil units are mapped as "all hydric" and correspond to the delineated wetland WB-01. The all hydric soil units include Houghton muck, 0 to 1 percent slopes, Palms muck, sloping, 2 to 12 percent slopes, and Faxon silty clay loam, 0 to 2 percent slopes.

**Table 11.1** summarizes the delineated features. Wetland WB-01 corresponds to the DNR PWI wetland. There are no known trout streams/lakes, wildlife lakes, migratory waterfowl feeding/resting lakes, or outstanding resource value waters within the project area.

**Table 11.1: Delineated Wetlands and Watercourses**

Features	Wetland / Watercourses ID		
	Wetland WB-01	Watercourse WC-01	Watercourse WC-02
Size (acres)	79.98	n/a	n/a
Length (feet)	n/a	459	186
Wetland Type	PEM1C/A/SS1A	n/a	n/a
Mapped Soils	Faxon silty clay loam, Palms muck, Houghton muck	Palms muck	Palms muck
Wetland/Watercourse Vegetation	Reed canary grass, hybrid cattail	Unvegetated	Unvegetated
Upland Vegetation	White dogwood, smooth brome, orchard grass	White oak, red maple, common buckthorn, gooseberries	White oak, red maple, common buckthorn, gooseberries

### **Impaired Waters**

According to the proposed 2020 Minnesota Impaired Waters List and the MPCA's impaired waters viewer (IWAV)<sup>12</sup>, the unnamed PWI watercourse approximately 75 feet north of the project site is impaired from its headwaters to Sand Creek (AUID: 07020012-732). The watercourse is impaired for Aquatic Life and has a TMDL targeted completion date of 2028 for benthic macroinvertebrates and fish bioassessments (**Exhibit 9**).

*ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on*

<sup>11</sup> Minnesota Department of Natural Resources (MNDNR). 2021. Buffer Map Viewing Application. Available at: <http://arcgis.dnr.state.mn.us/gis/buffersviewer/>

<sup>12</sup> Minnesota Pollution Control Agency (MPCA). 2020. Impaired Waters Viewer (IWAV). Impaired Waters: draft 2020. Available online at: <https://www.pca.state.mn.us/water/impaired-waters-viewer-iwav>. Accessed October 8, 2021.



*site or nearby, explain the methodology used to determine this.*

Aquifers are discussed in EAW Item 10. No springs are present on the project site based on the MNDNR's Spring Inventory Map<sup>13</sup>. The nearest springs are located greater than two miles north of the project, along the Minnesota River. Seeps were identified in the northern project area during the field wetland delineation conducted in October 2021.

### **Depth to Groundwater**

According to the Geotechnical Evaluation completed by HGTS, groundwater was not encountered in any of the eight soil borings while drilling and sampling, or after removal of the auger from the boreholes. HGTS stated that groundwater appears to be below the depths of the boreholes (> 20 feet).

### **MDH Wellhead Protection Area**

The Minnesota Department of Health's Source Water Protection Web Map Viewer<sup>14</sup>, provides information on Wellhead Protection Areas, Drinking Water Supply Management Areas and Vulnerability ratings, and Emergency Response Areas.

Wellhead Protection Areas (WHPAs) are areas surrounding public water supply wells that contribute groundwater to the well. In these areas, contamination on the land surface or in water can affect the drinking water supply. The project site is not located within the Jordan WHPA.

Drinking Water Supply Management Areas (DWSMAs) are areas containing the WHPA but outlined by clear boundaries, like roads or property lines. DWSMA vulnerability indicates how likely it is that contamination in the DWSMA can reach the public water supply intake. The project site is not located within the Jordan DWSMA, which has a low vulnerability to contamination.

Emergency Response Areas (ERAs) are areas surrounding public water supply wells where water has a one-year travel time to the well. ERAs are used to prioritize and manage potential contamination sources in the DWSMA. The project site is not within an ERA.

### **Wells**

According to the Minnesota Well Index (MWI)<sup>15</sup> map, one registered well (427129) is located within the project site and is associated with the existing farmstead north of Beaumont Boulevard. The well is used for domestic water supply and was drilled to a depth of 142 feet with a static water level of 77 feet below the land surface (elevation 853 feet). Ten nearby wells were also identified within a 0.5 mile area surrounding the project site. Table 11.2 summarizes the wells within the project site and nearby. The well logs are in **Appendix A** and shown on **Exhibit 9**.

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<sup>13</sup> Minnesota Department of Natural Resources (MNDNR). 2021. Minnesota Spring Inventory. Available online at: [https://www.dnr.state.mn.us/waters/groundwater\\_section/springs/msi.html](https://www.dnr.state.mn.us/waters/groundwater_section/springs/msi.html). Accessed October 8, 2021.

<sup>14</sup> Minnesota Department of Health. 2021. Source Water Protection Web Map Viewer. Available online at: <https://www.health.state.mn.us/communities/environment/water/swp/mapviewer.html>. Accessed October 8, 2021.

<sup>15</sup> Minnesota Department of Health. 2021. Minnesota Well Index. Available online at: <https://mnwellindex.web.health.state.mn.us/>. Accessed October 8, 2021.

**Table 11.2: County Well Index**

Well ID	Use	Status	Static Water Level (feet)	Surface Elevation (feet)
198990	Domestic	Active	65	812
212292	Domestic	Active	13	754
420958	Test Well	Sealed	109	849
427129 <sup>1</sup>	Domestic	Active	77	863
523918	Domestic	Active	57	789
532171	Domestic	Active	58	801
544947	Domestic	Active	83	870
545155	Domestic	Sealed	184	898
574967	Domestic	Active	80	805
684671	Domestic	Active	79	839
723500	Domestic	Not provided	70	823
<sup>1</sup> Well 427129 is located within the project site.				

- b. *Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.*
- i. *Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.*
- 1) *If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.*

Only normal domestic wastewater production is expected from the project. The types of wastewaters produced will be typical of new residential developments. No on-site municipal or industrial wastewater treatment is anticipated or planned. Because wastewater is from domestic sources, pre-treatment measures are not suggested.

The city of Jordan owns and operates its own wastewater facility; it is not a part of the Metropolitan Council's wastewater treatment system. The city of Jordan sewage treatment facility and ponds were constructed in the 1970's and were rebuilt in the 1980's and upgraded in 1993 but are currently largely unused. A portion of the pond system has been maintained to serve as a storage queue for wastewater when the mechanical plant is affected by inflow and infiltration (I&I). The city's wastewater treatment plant was constructed in 2001 with a capacity of 1,298,000 gallons per day (gpd), a peak demand of 1,968,000 gpd, and an average demand of 580,000 gpd. As of March 2017, the city of Jordan provided service to approximately 1,833 accounts.

The Metropolitan Council forecasts a population of 12,200 or 4,700 households would be served by the city's wastewater system in 2040. The city of Jordan believes the population and households will grow at a faster rate and therefore is

planning for a population of 15,000 or 6,000 households. The city is not considering a potential connection to the Metropolitan Disposal System to serve its population prior to 2040, and therefore plans to continue to serve its 2040 population with its current wastewater treatment facility.

According to the city's Wastewater and Comprehensive Sewer Plan (Chapter 4 of the 2020 Comprehensive Plan), the project site is located in the Syndicate Street Sewer District. The Syndicate Street interceptor's current service areas are completely within the 2040 Growth Boundary. The existing Syndicate Street interceptor sewer has adequate capacity to accept flow with the extension of 8-inch sanitary sewers. Existing stubs are located east of the project site at Sunset Drive and Aberdeen Avenue and at Old Highway 169 and Aberdeen Avenue. Municipal sewer service for the project will be achieved with a tributary spur from the Southwest Interceptor at the toe of the bluff to a ravine west of Delaware Avenue. New trunk collector sewers can then be extended to connect with the project. The city's wastewater treatment facility will receive wastewater from the Southwest Interceptor, treat it, and then discharge it to Sand Creek, which flows to the Minnesota River. According to the Jordan Southwest Interceptor EAW (2017), the Southwest Interceptor will have a design flow of 13.1 million gallons per day (mgd).

The Jordan WWTP is a mechanical treatment facility that consists of flow equalization, pretreatment, extended aeration activated sludge with biological phosphorous removal, final clarification, disinfection, aerobic digestion, and biosolids storage. The wastewater treatment facility continues to use two of the stabilization ponds from the earlier facility for flow equalization. The mechanical treatment facility is designed to treat an average wet weather flow of 1.289 mgd with a 5-day biochemical oxygen demand (BOD) of 1,045 pounds per day. The treatment facility discharges on a continuous basis to Sand Creek.

Since 2015, the average flow rate at the Jordan WWTP was 0.407 mgd. The future average daily and peak daily flow rates to the WWTP were calculated by land usage via both the 2040 Growth Boundary and 2040 population forecast. The 2040 Growth Boundary average daily and peak daily flow rates are 6.20 mgd and 15.8 mgd, respectively. These 2040 calculations were made assuming full buildout of the 2040 boundary at prescribed densities and assuming a 1,500 gal/acre/day usage rate for commercial/industrial uses. Using the 2040 population forecast and assuming land uses similar to the existing distribution, the 2040 average daily and peak flow rates are 0.75 mgd and 2.27 mgd, respectively. Based on these calculated flows, the planned expansion of the sanitary sewer system is anticipated to adequately carry and treat daily flows from the project.

- 2) *If the wastewater discharge is to a subsurface sewage treatment system (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.*

Wastewater discharge will not be to a subsurface sewage treatment system (SSTS).

- 3) *If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.*

Wastewater discharge is not to surface water. No effects are anticipated to surface or groundwater as effluent will be directed to a publicly owned treatment facility.

- ii. *Stormwater – Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.*

Stormwater will be managed in accordance with the city's storm water management regulations identified in the zoning code. Land disturbing activities will comply with the policies identified in the Comprehensive Surface Water Management Plan and the MPCA through the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) General Construction Permit.

#### **Pre-Construction Site Runoff**

Existing site runoff likely contains sediments, pesticides, and fertilizers from the existing agricultural activities. Runoff primarily drains north towards the wetland complex and south towards Old Highway 169 Boulevard. Site drainage is generally poor north of the bluff, and moderate to well drained south of the bluff. Based on the Geotechnical Evaluation, the first one foot of topsoil consists of silty sand, clayey sand, and lean clay. Below the topsoil, the soil borings encountered native alluvial soils that extended to the termination depths of the borings (20 feet). The alluvial soils consisted of silty sand, sandy silt, poorly graded sand with silt and poorly graded sand.

Based on the NRCS soils map, a majority of the soils located within the developable area consist of Hydrologic Groups A and C. Group A soils have a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. Group C soils have a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

#### **Post-Construction Site Runoff**

The change in land use will decrease the amount of suspended solids and increase other components typical of urban runoff. It is expected that the volume of runoff will increase during significant storm events as a result of the 99-acre increase in impervious surface area. The creation of open space and stormwater ponds within the development and preservation of the trees within the bluff impact zone will help to mitigate potential adverse effects from the increase in impervious surface.

**Runoff Quality and Volume**

Runoff water quality will be typical of low density residential developments and will likely be slightly degraded due to pollutants deposited on streets, roofs, parking lots, and other impervious surfaces. Preserved and newly seeded vegetation will help remove sediment and nutrients before runoff discharges to area wetlands and surface waters, mitigating potential effects on water quality. Phosphorus and Total Suspended Solids (TSS) reduction in discharge runoff will meet Nationwide Urban Runoff Program (NURP) levels as described in the city's 2020 Comprehensive Plan and accompanying Rules.

Potential adverse effects of runoff volume and quality will be further mitigated by the construction of stormwater ponds, which will be designed to reduce peak runoff rates and urban pollutants to meet the city requirements. The design of ponding areas and the quality of stormwater discharging from the development will meet the requirements of the MPCA General Stormwater Permit for Construction Activity (Minnesota Stormwater Manual), and applicable local regulations. In a storm event, stormwater will be retained in the ponds and discharged at or below existing peak runoff rates.

BMPs that are further defined in the NPDES/SDS permit will be employed during construction to reduce erosion and sediment loading of stormwater runoff. Inspection and maintenance of BMPs during construction will also be consistent with NPDES/SDS General Permit requirements, including site inspection after rainfall events, perimeter sediment control maintenance, and sediment removal.

**Rate Control**

For land areas annexed into the city that are currently within unincorporated areas of the Scott Watershed Management Organization, runoff rates cannot exceed pre-settlement runoff rates for the 2-year, 10-year, and 100-year, 24-hour storm events. When the project site is annexed into the city, these rates will apply.

**Receiving Waters**

The goal of the project is to maintain peak discharge rates at or below the existing condition and maintain volumes to the existing wetland. Post-construction drainage will follow similar pathways, with minor differences in drainage routes and increases in the volume of road ditches and swale flows. Post-development stormwater runoff will flow overland and infiltrate into the ground, and what doesn't infiltrate will flow through storm sewers prior to discharging to receiving waters.

For the following reasons, it is anticipated that site development will have minimal effects on receiving water quality:

- Creation of approximately 13.3 acres of ponds and parkland.
- Hydraulic storage within stormwater basins will be designed, and BMPs implemented, in accordance with the city policies and the General NPDES/SDS Permit for Construction Activities to protect water quality and control erosion.

**Stormwater and Erosion Control BMPs**

Because the project will involve disturbance of more than one acre of land, the project proposer will be required to follow the city's Erosion Control Ordinance and apply to the

MPCA for coverage under the NPDES/SDS General Permit prior to initiating earthwork on the site. This permit is required for discharge of stormwater during construction activity and requires that Best Management Practices (BMPs) be used to control erosion, and that erosion controls be inspected after each rainfall exceeding 0.5 inch in 24 hours. BMPs to be implemented during construction include:

1. Construction of temporary sediment basins in the locations proposed for stormwater ponding, and development of these basins for permanent use following construction.
2. Volume control for increase of impervious exceeding an acre, where feasible,
3. Installation of silt fence and other erosion control features prior to initiation of earthwork and maintained until viable turf or ground cover is established on exposed areas.
4. Periodic street cleaning and installation of a rock construction entrance to reduce tracking of dirt onto public streets.
5. Stabilization of exposed soils within the time limits specified in the permit.
6. Energy dissipation, such as riprap, installed at storm sewer outfalls.
7. Use of cover crops, native seed mixes, sod, and landscaping to stabilize exposed surface soils after final grading.

Because the unnamed PWI watercourse is an impaired receiving water within one mile of the project site, additional BMPs are required for water quality protection, including:

1. complete stabilization of exposed soil within seven calendar days after construction activity in respective parts the project temporarily or permanently ceases;
2. temporary sediment basin(s) for common drainage areas covering five or more acres of area disturbed at one time; and
3. mandatory Stormwater Pollution Prevention Plan (SWPPP) review because the project will disturb more than 50 acres land.

The SWPPP must be submitted to the MPCA at least 30 days prior to the construction start date. Other BMPs, such as natural swales and infiltration technologies, will be considered as project designs advance.

- iii. *Water appropriation – Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.*

#### **Surface/Groundwater Appropriations and Dewatering**

The project is not proposing new water wells, and no surface waters will be appropriated. According to the County Well Index (CWI) record one existing domestic well is

associated with the farmstead. No additional wells were identified on the land title survey. If other unidentified wells are discovered on the property, they will be field-located, abandoned, and sealed in accordance with Minnesota Department of Health (MDH) regulations prior to site development. A Well and Boring Sealing Record will be provided to the MDH by the contractor when the work is completed.

Construction dewatering is not anticipated. If dewatering becomes necessary, it would be limited and temporary. If groundwater is encountered during utility installation, it would be discharged to temporary sediment basins located within the project site.

If construction dewatering and pumping from the proposed development exceeds the 10,000-gallon per day or 1,000,000 gallons per year thresholds, a DNR Water Appropriation Permit will be obtained by the chosen utility contractor. If it becomes apparent that construction dewatering will not exceed 50 million gallons in total and duration of one year from the start of pumping, the contractor or project proposer will apply to the DNR Division of Waters for coverage under the amended DNR General Permit 97-0005 for temporary water appropriations. It is not anticipated that construction dewatering or pumping from the proposed development will be extensive or impact nearby domestic or municipal wells.

#### **Connection to a public water supply system**

According to the city's Water Supply Plan, all of Jordan's water is pulled from groundwater sources using four different wells. Well No. 5 and Well No. 6 draw from the Ironton / Galesville aquifer, and Well No. 7 and Well No. 8 draw from the Mt. Simon aquifer. Well capacity ranges from 450 to 1,500 gallons per minute.

The existing infrastructure within the city can meet the current water demands, and the city has plans to increase capacity and improve infrastructure to meet future demands. As part of the Capital Improvement Planning, the city proposes to drill a new well (Well No. 10), replace and upgrade distribution pipe for new developments, rehabilitate pressure reducing valve stations, and rehabilitate existing booster pump stations. Consequently, there are no water supply issues anticipated as a result of adding the 384 dwelling units to the city's water supply system.

Water will be supplied to the development via the Jordan municipal water supply system. Existing watermains are located east of Aberdeen Avenue and south of Old Highway 169. These watermains are associated with the River Ridge, Stonebridge, and Arborview residential developments. Future 10- and 12-inch pipes are west and south of the project site. The project proposer will coordinate the construction of and connections to the municipal water supply system with the city.

#### *iv. Surface Waters*

- a) Wetlands – Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable*

*wetland impacts will occur in the same minor or major watershed and identify those probable locations.*

The wetlands and watercourses identified during the field delineation are located entirely within the undeveloped portion of the project site, and will not be directly impacted.

- b) Other surface waters – Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.*

There are no other surface waters within the project site. The developed portion of the project site does not encompass recreational surface waters, and therefore will not change the number or type of watercraft on any waterbody.

## **12. Contamination/Hazardous Materials/Wastes**

- a. Pre-project site conditions – Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.*

A search for known environmental hazards and conditions was completed for the Pieper Property Residential Project. Database searches using the Minnesota Pollution Control Agency's (MPCA) What's In My Neighborhood and the U.S. Environmental Protection Agency's (EPA) MyEnvironment were conducted. No known environmental hazards are within or in close proximity to the project site.

The MPCA What's In My Neighborhood online database indicated no sites are listed within the project site. Within 0.25 mile of the project site, one inactive construction stormwater permit is listed that is associated with the Oak Terrace Senior Housing complex. An inactive hazardous waste generator license associated with Siemon Implement, Inc. is mapped just south of the project site, however upon closer inspection, the actual location is about 6 miles west of the project site in Belle Plaine.

The EPA, MyEnvironment online database revealed that no environmental hazards have been documented in the project site. The nearest listed site is Jordan Elementary as a hazardous waste generator.

Braun Intertec conducted a Phase I Environmental Site Assessment (ESA) in October 2021 to evaluate the project site for indications of recognized environmental conditions. No Recognized Environmental Conditions (RECs), Controlled Recognized Environmental Conditions, or Historic



Recognized Environmental Conditions (HRECs) were identified on the project site. Braun Intertec observed two piles of demolition debris (wood, sheet metal, pipes, windows, etc.) in the central portion of the project site, north of Beaumont Boulevard on the excluded parcel. The demolition debris is associated with a house and storage shed that were demolished approximately 2 years ago for safety reasons. It appeared that there was a basement or crawl space associated with the house. Concrete was observed around the perimeter of the former house.

There are no abandoned dumps, closed landfills, abandoned storage tanks or hazardous liquid or gas pipelines known to exist within the project site. One domestic water well was identified in the central portion of the project site, south of the debris associated with the demolished house, north of Beaumont Boulevard. According to the Phase I ESA, a septic system associated with the demolished house was reportedly crushed and left in place. This area has been excluded from development, and the well and septic system will not be removed as part of this project. Given the lack of known hazards on site, supplemental measures to avoid, minimize, or mitigate effects from existing contamination have not been considered beyond the well and septic system decommissioning. In the event that environmentally hazardous conditions are identified during site construction, measures will be taken to ensure that project development and operation does not exacerbate contamination or generate new environmental hazards.

- b. *Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.*

Construction activities will generate wastes typical of residential development operations. No solid or hazardous wastes, including solid animal manure, sludge, and ash, will be produced during or post construction operations. The contractor will dispose of wastes generated at the site in an approved method by using commercial dumpsters and disposing construction wastes at an MPCA-permitted landfill. The contractor will minimize and mitigate adverse effects from the generation and storage of solid waste by recycling construction waste that can be recycled, when feasible.

Following project construction, solid waste generation will be typical of occupied residential developments of this size. The majority of the solid waste generated will include materials such as paper, organics (food wastes), yard waste, and inert solids. The remaining wastes will likely include plastics, metals, and glass.

According to the Metropolitan Solid Waste Management Policy Plan 2016-2036 (MPCA, 2017), the Minnesota per capita rate for waste generation is approximately 1.13 tons per year. Population and household estimates for the Twin Cities 7-County Region project that in 2020 the population is 3,168,000 with 1,237,000 households. According to the Comprehensive Plan, the city of Jordan had an average household size of 2.92 in the year 2010. The household occupant number was then multiplied by 1.13 tons per person per year, based on the MPCA estimate for Minnesota families. Using these conservative figures, the proposed development could generate as much as 1,340 tons (406 units x 2.92 people/unit x 1.13 tons/person/year) of residential municipal solid waste per year.

Residents within the new development will make use of the city's contracted garbage and recycling services. The city has implemented organized garbage and recycling collection services

through a contract with Dick's Sanitation Inc. Having an organized collection system, as opposed to residents individually contracting with a hauler, is expected to reduce the number of trucks, thereby reducing the noise and air pollution associated with truck traffic.

- c. *Project related use/storage of hazardous materials – Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.*

It is not anticipated that the proposed project will generate, or require storage of, significant amounts of wastes that would be considered hazardous aside from typical household cleaners, paints, lubricants, and fuel storage for small power equipment. Toxic or hazardous materials such as fuel for construction equipment and materials used during the normal construction process of residential units (paint, adhesives, stains, acids, bases, herbicides, and pesticides) will likely be used in typical quantities during site preparation and unit construction. These materials will be properly stored during on-site use and according to state and federal regulations to prevent accidental spill or release of hazardous materials. Builders and contractors are responsible for proper management and disposal of wastes generated during construction, which is typically handled by using construction dumpsters and the appropriate certified landfills. The contractor will minimize and mitigate adverse effects from the generation and storage of hazardous wastes by recycling wastes that can be recycled, and by developing a stormwater pollution prevention plan.

Use of toxic or hazardous materials, outside of vehicle fuels, standard household cleaners, pool and lawn care chemicals, is not anticipated within the project area in conjunction with the proposed residential development.

- d. *Project related generation/storage of hazardous wastes – Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.*

Outside of the materials described above, the project is not anticipated to generate or require the storing, handling or disposal of hazardous wastes during construction or during operation. Consequently, potential environmental effects from hazardous wastes, and measures to avoid minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling, have not been considered.

### **13. Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)**

- a. *Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.*

The Project proposer used land cover types and aerial photography to conduct desktop-analyses of habitat composition relative to the project site. Land cover types were identified using the Minnesota Land Cover Classification System (MLCCS).<sup>16</sup> Current land cover within the project

<sup>16</sup> Minnesota Department of Natural Resources. 2018. Minnesota Land Cover Classification System. Available online at: <https://gisdata.mn.gov/dataset/biota-landcover-mlccs>.

site includes: 3.84 acres of impervious surfaces, 20.65 acres of grassland (short and tall grasses), 114.83 acres of cultivated agricultural land, 28.74 acres of mixed forest, and 64.01 acres of emergent wetland vegetation (see **Exhibit 4**). A tree survey will be performed to identify the trees along the bluff line.

The habitats available within the site are likely used by wildlife species common to the Northcentral Hardwood Forest ecoregion of Minnesota. Wildlife species that may utilize this area include species that use forests, wetlands, and grasslands in fragmented landscapes, such as the American Robin (*Turdus migratorius*), Eastern Meadowlark (*Sturnella magna*), Wild Turkey (*Meleagris gallopavo*), eastern cottontail (*Sylvilagus floridanus*), striped skunk (*Mephitis mephitis*), white-tailed deer (*Odocoileus virginianus*), and small mammals such as mice (Family *Muridae*) and shrews (Family *Soricidae*).

The project site is located approximately two miles from the Minnesota River and Minnesota Valley State Recreation Area. Additionally, two groundwater-driven watercourses were delineated during fieldwork in October 2021 and depths were recorded at 0.25 feet (3 inches) deep at each location. Proximity to these water resources could contribute to additional species onsite, such as migratory and breeding raptors.

- b. *Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-980) and/or correspondence number (ERDB-) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.*

### State

Westwood submitted a request to the MNDNR Natural Heritage Program on October 1, 2021, to determine if there are records of rare plants or animals, native plant communities, or other rare features within one mile of the project site. A response has not yet been received from the MNDNR as of this EAW distribution.

Westwood also reviewed the Natural Heritage Information System (NHIS) database to assess rare species and natural features. The NHIS database review identified records of five species within one mile of the project site. These species include:

1. Gopher snake (*Pituophis catenifer*) – A state special concern reptile.
2. Louisiana broomrape (*Orobanche ludoviciana* var. *ludoviciana*) – A state threatened plant.
3. Big tick trefoil (*Desmodium cuspidatum* var. *longifolium*) – A state threatened plant.
4. Henslow's Sparrow (*Ammodramus henslowii*) – A state endangered bird.
5. Loggerhead Shrike (*Lanius ludovicianus*) – A state endangered bird.

None of these species are afforded protections under the federal Endangered Species Act (ESA).

Westwood also evaluated other biological resources within the project site by reviewing the following GIS layers: Native Plant Communities (NPCs), Sites of Biodiversity Significance, Railroad Rights-of-Way Prairies, and Regionally Significant Ecological Areas (RSEAs). There is one MCBS site of moderate biodiversity significance (wetland) and one RSEA that extends

within the project site. Additionally, there are two NPC's (Upland Prairie System, Wet Meadow/Carr System) and one MCBS Site of Moderate Diversity within a half mile of the project site. There are no Railroad Rights-of-Way Prairies located in or within a half mile of the project site (**Exhibit 10**).

### **Federal**

Online information on rare species maintained by the U.S. Fish and Wildlife Service (USFWS) was also reviewed for the project site. According to the USFWS Information for Planning and Consultation (IPaC), there is one federally listed species and one candidate for listing species that may occur within or near the project site. These species include the federally threatened northern long-eared bat (*Myotis septentrionalis*) (NLEB) and candidate for listing monarch butterfly (*Danaus plexippus*). The NLEB is also considered a special concern species at the state level. While there are no known NLEB hibernacula in Scott County, at least one maternity roost tree has been recorded within the County (T115N R23W).<sup>17</sup> The project site is located within approximately four miles of this township. Please note that the monarch butterfly, as candidate species, is not currently afforded protections under the federal ESA.

Review of the USFWS Rusty Patched Bumble Bee Map<sup>18</sup> indicates the northern portion of the one-mile buffer falls within the low potential zone of the rusty patched bumble bee (*Bombus affinis*) (RPBB), a federally endangered species.

Although not protected under the federal ESA, the project site is also located within the breeding range of the Bald Eagle (*Haliaeetus leucocephalus*), which remains protected under the Bald and Golden Eagle Protection Act (BGEPA).

- c. *Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.*

Project development is expected to convert approximately 114.8 acres of cultivated cropland and approximately 8.0 acres of woodland and treeline habitat within the project site to residential development. This land conversion could result in displacement or local declines of wildlife species that are commonly associated with agricultural land, such as Red-tailed Hawks, American Robins, eastern cottontails, and white-tailed deer. While some resident species may experience more adverse effects, others are more disturbance tolerant and will likely return to the project site once construction is complete.

### **State Listed Species**

Habitat descriptions for the state listed species was obtained from the MNDNR Rare Species Guide, which includes revisions to Minnesota's List of Endangered, Threatened, and Special Concern Species that went into effect August 19, 2013.

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<sup>17</sup> Minnesota Department of Natural Resources, U.S. Fish and Wildlife Service. 2021. Townships containing documented Northern Long Eared Bat (NLEB) Maternity Roost Trees and/or Hibernacula Entrances in Minnesota. Available at: [http://files.dnr.state.mn.us/eco/ereview/minnesota\\_nleeb\\_township\\_list\\_and\\_map.pdf](http://files.dnr.state.mn.us/eco/ereview/minnesota_nleeb_township_list_and_map.pdf)

<sup>18</sup> U.S. Fish and Wildlife Service. 2021. Rusty Patched Bumble Bee Interactive Map. Available at: <https://www.fws.gov/midwest/Endangered/insects/rpbb/rpbbmap.html>

**Gopher Snake**

Suitable habitat for the gopher snake includes dry sand prairies and bluff prairies with areas of well-drained, loose sandy and gravel soils. During hibernation, the gopher snake will use rodent burrows and rock fissures in bluffs and outcrops. The project site includes forested bluff habitat that could provide suitable habitat; however, areas proposed for development will avoid bluff and wetland habitat in the northern half of the project site. Therefore, impacts to this species are not anticipated.

**Louisiana Broomrape**

Louisiana broomrape is very rare in Minnesota and occurs in dry prairies and savannas, primarily in sandy soils or shallow stony soils over bedrock. Louisiana broomrape is an obligate root parasite that lacks chlorophyll which makes suitable habitat limited to sites with host plants present. Host plants for this species come predominately from the *Artemisia* genus, but also include other perennial Asteraceae. The project site appears limited in potentially suitable habitat given the forested bluffs, extensive wetland, and highly disturbed agricultural areas. Therefore, impacts to this species are not anticipated.

**Big Tick Trefoil**

Big tick trefoil grows in mesic forests dominated by oak, sugar maple, and basswood, in southeastern Minnesota. This species requires mature hardwood forests in areas with no disturbance such as forest management practices and livestock grazing. Within the forested habitat, big tick trefoil requires small canopy gaps or temporary edges where there is filtered sunlight rather than continual shade. Potentially suitable habitat associated with the forested bluff could be present within the project site. While development will largely occur in the highly disturbed areas of agricultural land use, tree clearing in areas contiguous to the forested bluffs are planned. Given the potentially suitable habitat in this area, risk of impacts to the big tick trefoil cannot be eliminated.

**Henslow's Sparrow**

Henslow's Sparrow prefer large (< 247 acre) tracts of wet meadows and other grasslands with tall, dense vegetation that provide stems for singing perches and a substantial litter layer. The project site does not appear to provide suitable habitat for the species based on the predominance of shallow marsh habitat and woodland in uncultivated regions of the project site. Therefore, impacts to Henslow's Sparrow are not anticipated.

**Loggerhead Shrike**

Suitable habitat for the Loggerhead Shrike includes areas of upland grasslands and agricultural areas where short grass vegetation and perching sites such as hedgerows, shrubs, and small trees are present. The Loggerhead Shrike prefers open landscapes and in Minnesota is largely restricted to areas that were historically prairie or oak savanna. The project site appears limited in suitable habitat given the predominance of wetland, woodland and agricultural land. Therefore, impacts to this species are not anticipated. Habitat descriptions for the federally listed species were obtained from the USFWS Midwest Region Endangered Species fact sheets and species profiles.

**Federally Listed Species**

Habitat descriptions for the federally listed species were obtained from the USFWS Midwest Region Endangered Species fact sheets and species profiles.

**Northern Long-Eared Bat (*Myotis septentrionalis*)**

Suitable NLEB habitat consists of a variety of forested or wooded habitats where they roost and forage; they may also forage on adjacent non-forested habitats such as emergent wetlands, edges of agricultural fields, old fields, or pastures<sup>19</sup>. In the winter, NLEB hibernate in caves and mines that provide high levels of humidity, minimal airflow, and a constant temperature. Potentially suitable roosting and foraging habitat appears to be present within the project site based on the presence of woodlands and wetlands. While development will largely occur in the highly disturbed areas of agricultural land use, areas of tree clearing is planned and may affect NLEB.

**Rusty Patched Bumble Bee (*Bombus affinis*)**

RPBB are found in grasslands, shrublands, woodland edges, and wetlands that provide foraging or nesting opportunities; for overwintering purposes, this species prefers woodlands and woodland edges with undisturbed soils<sup>20</sup>. While potentially suitable habitat for this species could be present within the project site, the project site falls outside of the RPBB low potential zone. Therefore, impacts to this species are not anticipated.

**Monarch Butterfly (*Danaus plexippus*)**

Suitable monarch butterfly habitat includes undisturbed herbaceous vegetation where they forage on milkweed (*Asclepias*), and other flowering plants such as sunflowers (*Helianthus spp*), thistle (*Cirsium spp*), goldenrods (*Solidago spp*), asters (*Symphyotrichum spp* and *Eurybi spp*), gayfeathers (*Liatris spp*), and coneflowers (*Echinaca spp*). During their migration period, monarch butterflies will roost in deciduous and evergreen trees such as pines (*Pinus spp*) and willows (*Salix spp*).<sup>21</sup> Potentially suitable habitat could be present within the project site; given the diversity of habitats this species could use.

**Bald Eagle**

Bald Eagles breed throughout Minnesota and will typically nest and roost in mature trees adjacent to bodies of water, a key foraging habitat.<sup>22</sup> Given the proximity to the Minnesota River and presence of woodland within the project site, bald eagles may be present within the project site.

**Invasive Species**

Although project construction could be expected to slightly increase the potential for spread of invasive and weedy species, much of the developable area has been disturbed by agricultural use since at least 1937.<sup>23</sup> BMPs may include the cleaning of construction equipment before transport, which might reduce the potential spread of invasive species.

- d. *Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.*

Measures to minimize and mitigate adverse effects on wildlife include the preservation of the northernmost parcel (~80 acres), which will be conveyed to the city. In addition, the project will

<sup>19</sup> U.S. Fish and Wildlife Service. 2020. Northern Long-Eared Bat. Available at: <https://www.fws.gov/midwest/endangered/mammals/nleb>.

<sup>20</sup> U.S. Fish and Wildlife Service. 2019. Rusty Patched Bumble Bee Fact Sheet. Available at: <https://www.fws.gov/midwest/endangered/insects/rpbb/factsheetrpbb.html>

<sup>21</sup> U.S. Fish and Wildlife Service. 2021. Monarch Butterfly. Available at: <https://www.fws.gov/savethemonarch/>

<sup>22</sup> Buehler, D. A. 2020. Bald Eagle (*Haliaeetus leucocephalus*), version 1.0 in Birds of the World. Cornell Lab of Ornithology, Ithaca, NY, USA.

<sup>23</sup> University of Minnesota. 1937. Minnesota Historical Aerial Photographs Online from the John R. Borchert Map Library. Available online at: <https://apps.lib.umn.edu/mhapo/>

create 8.2 acres of stormwater ponds and dedicate 5.1 acres of public park. Such efforts are intended to minimize habitat fragmentation and allow for wildlife movement within the project site and from adjacent, off-site resource areas. Potential impacts to NLEB can be further minimized by clearing trees during the NLEB inactive season (November 1 to March 31).

#### 14. Historic properties

*Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.*

A database search request was made to the Minnesota State Historic Preservation Office (SHPO), who conducted a search of the Minnesota Archaeological Inventory (AI) and Historic Structure Inventory (HSI) for the project area and surrounding areas (**Appendix C**). Based on the results of their review, no previously recorded archaeological sites, historic structures, or traditional cultural properties were identified in the database for the project area. Four archaeological sites and sixty (60) inventoried architectural resources are recorded within one mile of the project. No National Register of Historic Places (NRHP) listed or eligible properties are within the Project Area. Within one mile of the project there is one historic district and two individual properties listed in the NRHP; one bridge considered NRHP eligible has been replaced.

The four archaeological sites within the one-mile buffer all consist of alpha sites. Alpha sites are sites identified through historic documentation or landowner/collector reports but have not been reviewed by a professional archaeologist. Site 21SCac, an artifact scatter, is approximately 0.55 miles east of the Project Area. Site 21SCe, the ghost town of Brentwood recorded in historic documentation, is approximately 0.95 miles northeast of the Project Area. Site 21SCt, a sawmill recorded in historic documentation, is approximately 0.90 miles northeast of the Project Area. Site 21SCv, recorded as P.P. Wells in historic documentation, is approximately 0.90 miles east of the Project Area. None of the sites will be impacted by the proposed Project.

Of the 60 historic architectural structures recorded within one mile of the project area, one is immediately adjacent to the project. A 0.50-mile segment of Former TH 5/Old Hwy 169 Blvd (XX-ROD-047) runs along the southern boundary of the project. Of the three properties listed in the NRHP, the Jordan Historic District (SC-JRC-001) (containing resources SC-JRC-036–052) stands 0.90 mile east-northeast of the project site, the Foss and Wells House (SC-JRC-036) stands 0.90 mile to the east, and the Jordan Brewery Ruins (SC-JRC-002) is 0.94 mile to the east. Located 0.88 mile east-northeast, the Jordan Fairgrounds Bridge (Bridge No. 5704, SC-JRC-053) was previously considered eligible for the NRHP, but it has been replaced by Bridge 70551. The remaining historic architectural structures are unevaluated for the NRHP.

Additional background research was conducted online via the MN Office of the State Archaeologist Portal. No other previously recorded archaeological sites or historic architectural resources properties were identified within or immediately adjacent to the project area. Effects to known historic properties during and after project construction are not anticipated.

## 15. Visual

*Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.*

The current project site includes agricultural land, shrubland, forested lands along with a farmstead, and Beaumont Boulevard (gravel road). The project site includes views of a wooded bluff to the north, a recently reclaimed gravel mine to the west, residential developments to the south and southeast, and a senior living complex and public schools to the northeast including views of the wooded and open space areas associated with the public schools. No vapor plumes or intense lighting will result from development of the project.

The main visual effect will be the transition of views from mostly open agricultural land to residential development. Two scenic overlook parks are proposed along the wooded bluff area north of Beaumont Boulevard. The overlooks would provide views of the wooded slopes and large wetland complex.

Views of the proposed development are consistent with other established uses in the area, and therefore will not create a significant change in visual aesthetics. In addition, views from the snowmobile trail and wetland complex are obstructed by the steep topography and wooded bluff.

Measures to soften visual transitions include providing landscaped areas and planted trees along Old Highway 169 and Aberdeen Avenue, preservation of a majority of trees along the top of the bluff, preservation of the wetland complex, planting trees along internal roads, and constructing stormwater ponds, and a park within the project site.

## 16. Air

- a. *Stationary source emissions – Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.*

The Project will not include stationary source emissions that exceed the mandatory EAW thresholds identified in Minnesota Rules Part 4410.4300, Subp. 15 or thresholds requiring an air permit from the Minnesota Pollution Control Agency (MPCA). GHG emissions from this Project, while unquantified, are not expected to cause significant environmental effects.

The Project will likely have air emissions that are common to single- and multi-family residential developments and could include sources such as natural gas and oil powered equipment, fertilizer and product use, carbon storage in housing materials, heating and cooling systems, and air conditioner and refrigerator leakage. These sources generally fall under Conditionally Insignificant Activities and Conditionally Exempt Stationary Sources according to Minn. R. 7007.1300 and Minn. R. 7008.0050 – 7008.4110.

Additionally, there are no federal or Minnesota thresholds of GHG significance for determining impacts of GHG emissions from an individual project on global climate change, nor are there Minnesota or National Ambient Air Quality Standards for GHGs.



Measures that could minimize the impacts of GHG emissions may include providing trails and sidewalks as alternative modes of transportation, using energy efficient building materials that reduce needs for home heating and cooling; installing energy efficient appliances; and using LED lighting (where applicable) and industry-standard insulating.

- b. *Vehicle emissions – Describe the effect of the project’s traffic generation on air emissions. Discuss the project’s vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.*

Vehicle emissions will be associated with vehicles and construction equipment traveling to and from the project site. The proposed project will generate increased traffic, which will result in a relatively small corresponding increase in carbon monoxide, carbon dioxide, and other vehicle-related air emissions. Based on traffic review findings and planned transportation improvements, described further in Section 18, studied intersections are expected to operate at acceptable overall level of service (LOS) with the proposed project, reducing the possibility of congestion and vehicle idling within and near the project area.

While increased vehicular GHG emissions from both the construction and operational phases of the project are anticipated, it is expected to have a minor effect on air quality. The project does not include air quality monitoring or modeling.

- c. *Dust and odors – Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.*

The Project will not generate significant dust or odors during construction or operation. Minor odors generated during construction will be typical of those associated with residential development processes, such as exhaust from diesel and gasoline powered construction equipment.

Grading and construction will temporarily generate dust. BMPs and other standard construction methods will be used to reduce impacts such as intermittent applications of water to exposed soils as needed to reduce dust during dry weather. Nearby sensitive receptors include the residential developments to the south and east and the senior living complex at the northeast corner of the project site. Dust and odors are not expected to impact these sensitive receptors.

Construction dust control is required to be in conformance with the city of Jordan’s ordinances and the NPDES Construction Stormwater permit. The construction and operation of the project is not anticipated to involve processes that would generate odors.

## 17. Noise

*Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.*

No unusual circumstances have been identified that would necessitate a detailed noise analysis. The following is a summary of the existing and anticipated noise conditions.

### **Construction and Operational Noise**

Noise levels on and adjacent to the site will vary considerably during construction depending on equipment and the phase of construction. The loudest phase of construction is expected to be grading, with an equipment roster of front loaders, dozers, graders, scrapers, and backhoes. Utilizing the FHWA Road Construction Noise Model (RCNM), the maximum construction noise level calculated at the nearest receptor was found to be 65 dBA. Construction equipment used on this project will be equipped with appropriate mufflers that will be maintained throughout the construction process.

The project is not expected to produce excess noise levels in operation beyond resident traffic.

### **Existing Noise Levels/Sources**

The existing noise in the project area is dominated by traffic noise from Old Highway 169 Blvd. There is also traffic on local streets, but this is not expected to be noticeable above the noise from the main roadway.

### **Nearby Noise Sensitive Receptors**

The project area is bounded on the South and East by single family residential neighborhoods. There is a senior living home and an elementary school at the Northeast corner of the project.

### **Conformance to State Noise Standards**

The Minnesota State Noise Standards for residential land uses are presented in Minnesota Rule 7030. Residential land uses are included in the NAC-1 (Noise Area Classification -1) under Minnesota Rule and it is required that all efforts be taken to prevent the establishment of land use activities in any location where the standards will be violated immediately upon establishment of the land use. Thus, noise levels on the project site must be under the levels reported in the following table.

Metric	Daytime	Nighttime
L <sub>10</sub>	65 dBA	55 dBA
L <sub>50</sub>	60 dBA	50 dBA

Existing noise levels were calculated at the project site utilizing FWHA's Traffic Noise Model (TNM). Traffic counts from 2019 were used to model peak hour traffic noise at the project site. The peak hour was found to have an L<sub>10</sub> of 53 dBA and a L<sub>50</sub> of 48 dBA. These levels fall below the lowest nighttime requirements for NAC-1, and thus the project is expected to comply with Minnesota Rule 7030.

### **Mitigation and Quality of Life**

The project complies with Minnesota Rule 7030 without mitigation.

The project will be constructed in accordance with the state's established noise ordinance as outlined in Minn. Stat. § 116.07 and Minn. R., Chapter 7030. Additionally, the project will be constructed in accordance with the city's established noise ordinance as outlined in the city Code.

## **18. Transportation**

- a. *Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip*

*generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.*

Bolton & Menk reviewed the project on June 22, 2020 to identify potential impacts to public infrastructure for all modes of travel. The analysis was based on 401 single-family dwelling units and is included in **Appendix D**.

#### **Existing and Proposed parking spaces**

The proposed 384 residential twinhome, villa, and single-family homes will include off-street parking and garages.

#### **Estimated Traffic Generation**

Vehicle traffic volumes were collected in May 2019 at four intersections, including CR 66 and Prospect Pointe Road; CR 66 and Aberdeen Ave; Aberdeen Ave and Ridge St; and Aberdeen Ave and Beaumont Boulevard.

Trips were distributed to the network through assumptions as to which entrance drivers were likely to use based on home location. As shown in Table 18.1, the project would add 3,731 trips per day to the transportation network.

**Table 18.1: Trip Generation**

	Average Rate	Number of Trips		Percent of Trips		Trips
		Enter	Exit	Enter	Exit	
AM	0.74	72	217	25%	75%	290
PM	0.99	243	143	63%	37%	385
Weekday	9.44	1,866	1,866	50%	50%	3,731

#### **Source of Trip Generation Rates**

The ITE Trip Generation Manual 10th Edition was used to determine the new trips generated in the area.

#### **Availability of Transit and/or Other Alternative Transportation Modes**

Trails and sidewalks provide another alternative approach for local travel. The project layout includes internal sidewalks and trails along Aberdeen Avenue and Old Highway 169. The trail system will connect with the existing trail along Aberdeen Avenue and to future trails along Old Highway 169 and the north-south realigned portion of Beaumont Boulevard. As a future collector street, Beaumont Boulevard will have a trail on one side. Bolton & Menk collected daily pedestrian volumes at CR 66 and Aberdeen Ave and Aberdeen Ave and Sunset Dr. Fifty-seven pedestrian trips were observed at CR 66 and Aberdeen Ave.

Residents of the new development would be able to use several transportation options, and Park & Rides located throughout the county. SmartLink is a mobility management service that includes Dial-A-Ride and provides service anywhere in the seven-county metro area.

Minnesota Valley Transit Authority is the public transportation agency for seven suburbs located approximately 15 miles south of Minneapolis and Saint Paul. While Jordan is not part of the MVTA route system, residents could travel between Savage, Shakopee, and Prior Lake in Scott County, and Apple Valley, Burnsville, Eagan, and Rosemount in Dakota County.

Land to Air provides shuttle service from the Marschall Road Transit Station (Shakopee) to the Minneapolis/Saint Paul International Airport.

- b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: <http://www.dot.state.mn.us/accessmanagement/resources.html>) or a similar local guidance.*

Traffic operations were analyzed for various scenarios to compare Build traffic to No Build traffic, to identify potential issues caused by the increased project trips. Both the Build 2040 and No Build conditions account for additional traffic from school enrollment growth, which is estimated to be a 22 percent increase from 2019 to 2040. No Build implies no residential development on the project site, while Build implies the full build-out of the residential development.

In both the build year and 20-year forecasted scenarios, traffic operations are satisfactory. No significant degradation in operations is expected at the intersections analyzed with the development in place given the density of trips generated, the number of accesses identified, and the existing travel patterns along CR 66 and Aberdeen Ave.

- c. Identify measures that will be taken to minimize or mitigate project related transportation effects.*

The Predevelopment Agreement between the city and project proposer outlines street, sidewalk, trail, rights-of-way standards and roadway and trail stubs to be provided as part of the development. The project proposer will construct right turn lanes along the west side of Aberdeen Avenue (south traveling traffic). Turn lanes are not required along or within Beaumont Boulevard. Turn lanes and or bypass lanes at County Road 66 may be required by Scott County. The project proposer would also be required to have one roadway stub and one trail stub to the undeveloped property to the west of the project site.

The newly reconstructed and realigned Beaumont Boulevard is proposed to be 36 feet in width with a 66-foot-wide right-of-way and include an 8-foot-wide trail on one side. Internal roads are proposed to be 34 feet wide with 60-foot-wide rights-of-way and a 6-foot-wide sidewalk on one side.

## **19. Cumulative Potential Effects**

(Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

- a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.*

It is anticipated that the project will be constructed in six phases, with the first phase expected to begin in 2022 and full build-out expected by 2027; however, construction timing will ultimately depend upon market conditions.

The changes in regional land use in the Lawrence Township and Jordan area from undeveloped open space and agricultural land uses to more urbanized uses are expected to have a cumulative

impact on the area. Cumulative effects of this and future projects on natural resources and infrastructure are expected to be roughly proportional to the impacts discussed in this EAW, or somewhat greater if future projects are developed at a higher density. The city has planned for future growth and development in this particular area as part of its 2040 Comprehensive Land Use Plan, Downtown Master Vision, Central Business District Design Standards Manual, Highway Commercial Design Manual, Master Parks, Trails, and Natural Resources Plan, and code of ordinances. These efforts will ensure that the cumulative impacts of future growth and development to the environment, and to the city's service capacity, are anticipated and managed in a sustainable manner.

- b. *Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.*

The developer does not currently own or have options on adjacent or nearby lands.

The city maintains a list of current projects. As of October 1, 2021, the list indicates that one Rezoning Application is currently pending. Further review indicates that the Rezoning efforts were approved in May 2021. No other known planning projects are currently pending in the city.

In the areas surrounding the project, there are several undeveloped adjacent parcels which are anticipated to be annexed into the city. Parcels to the north and northeast are anticipated to be low density residential areas. Parcels to the east are anticipated to be used for medium density residential land uses. Other areas surrounding the current city limits are anticipated to be developed in accordance with the 2040 Future Land Use Map. Project development is not expected to interfere with nearby projects or exacerbate any potential negative environmental effects.

Because many of the above projects and available lots develop based on market drivers and conditions, the timing of future development can, and likely will, fluctuate. The 2040 Comprehensive Plan anticipates and guides the intensity of development within the city and directs necessary infrastructure improvements to support the planned development.

- c. *Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.*

The proposed project will result in conversion of agricultural lands to urban uses. Consequently, cumulative impacts to natural resources are anticipated to be minimal and have been purposefully concentrated in this portion of the Township proposed for annexation into the city of Jordan. Development of parcels in close proximity to the project area including other low density residential housing will also result in cumulative impacts to city infrastructure such as roads, sewer, and water. These cumulative impacts have been thoughtfully contemplated and addressed in the 2040 Comprehensive Land Use Plan, Downtown Master Vision, Central Business District Design Standards Manual, Highway Commercial Design Manual, Master Parks, Trails, and Natural Resources Plan, and code of ordinances. In addition, as surrounding properties develop or re-develop into new land uses, they will be evaluated under the Minnesota Environmental Policy Act (MEPA) rules and will need to adhere to guidelines presented in the city's approved zoning and comprehensive plans.

Mitigation for anticipated minor cumulative impacts in the area will include retaining, preserving and providing approximately 152.0 acres of open space that includes the undeveloped portion, parkland, lawns/landscaping, and stormwater ponds. These provisions will help minimize potential cumulative effects of past developments and future developments within the region. Given the nature of cumulative potential effects, the evaluation of available and relevant information, and mitigation efforts proposed, the potential for significant environmental effects due to these cumulative effects appears low.

**20. Other Potential Environmental Effects:**

*If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.*

No other additional environmental effects are anticipated as a result of this project. Potential environmental effects have been addressed in Items 1 through 19.

**RGU CERTIFICATION** (*The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.*).

**I hereby certify that:**

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

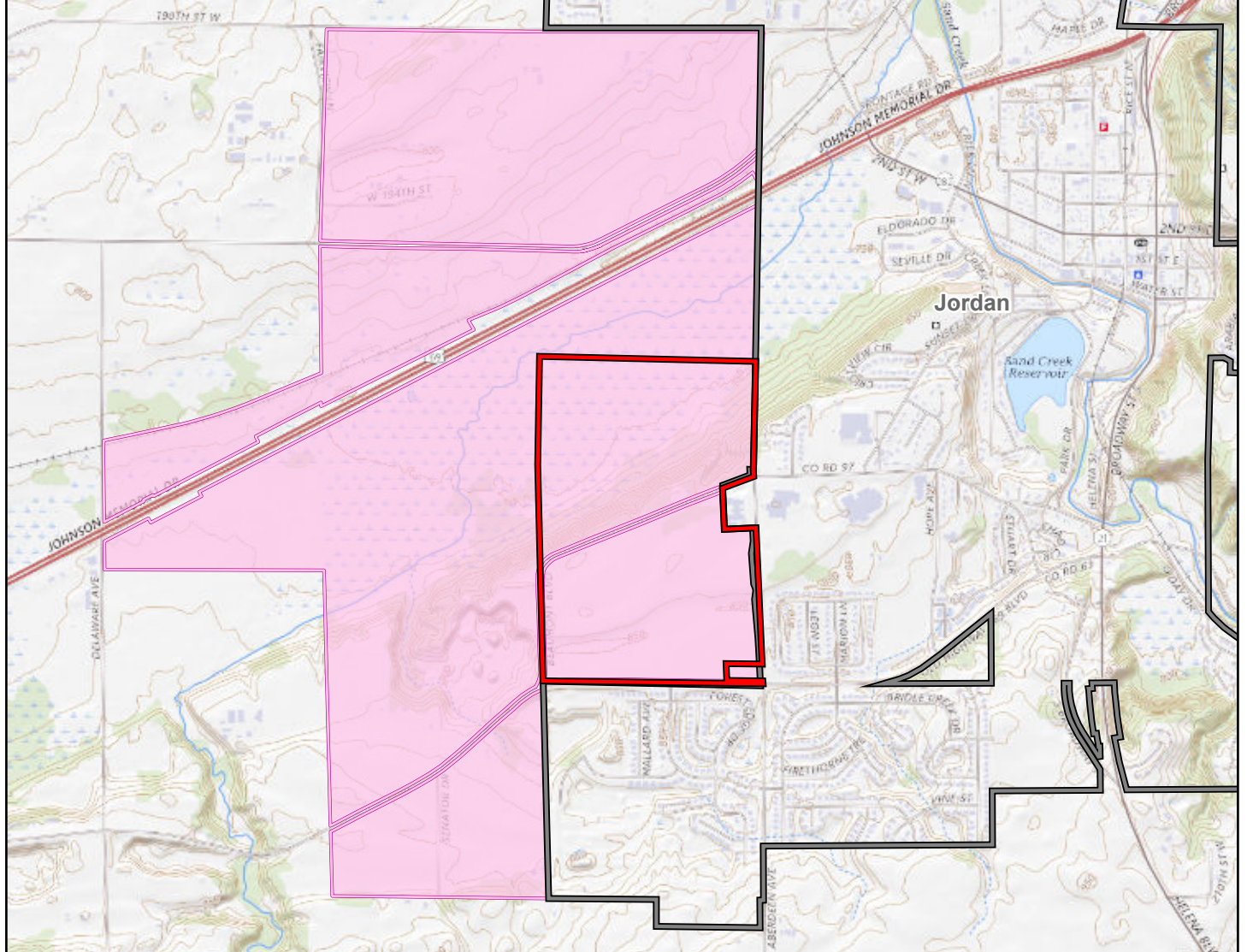
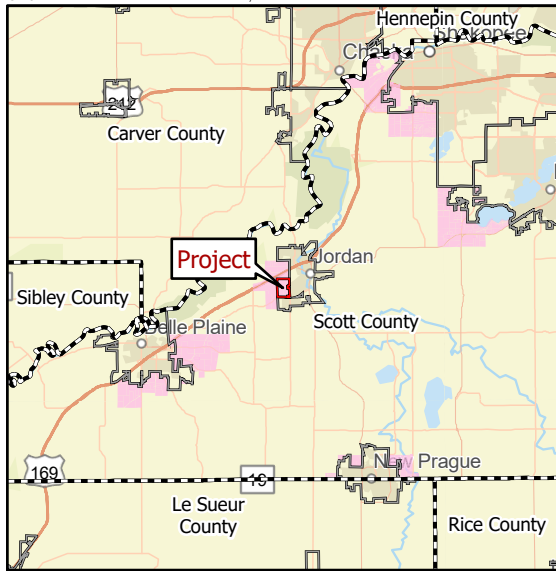
Title: Tom Nikunen, City Administrator, City of Jordan

# **Exhibits 1 – 10**

**Pieper Residential Development EAW**  
Scott County, Minnesota

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Data Source(s): Westwood (2021); ESRI WMS  
USGS Topo Maps & World Streets Basemaps  
(Accessed 2021); U.S. Census Bureau (2020);  
MNDNR (2021).

### Legend

- Project Area
- Municipal Boundary
- 2040 Growth Boundary



0 2,000 Feet

**Pieper Property**  
**EAW**

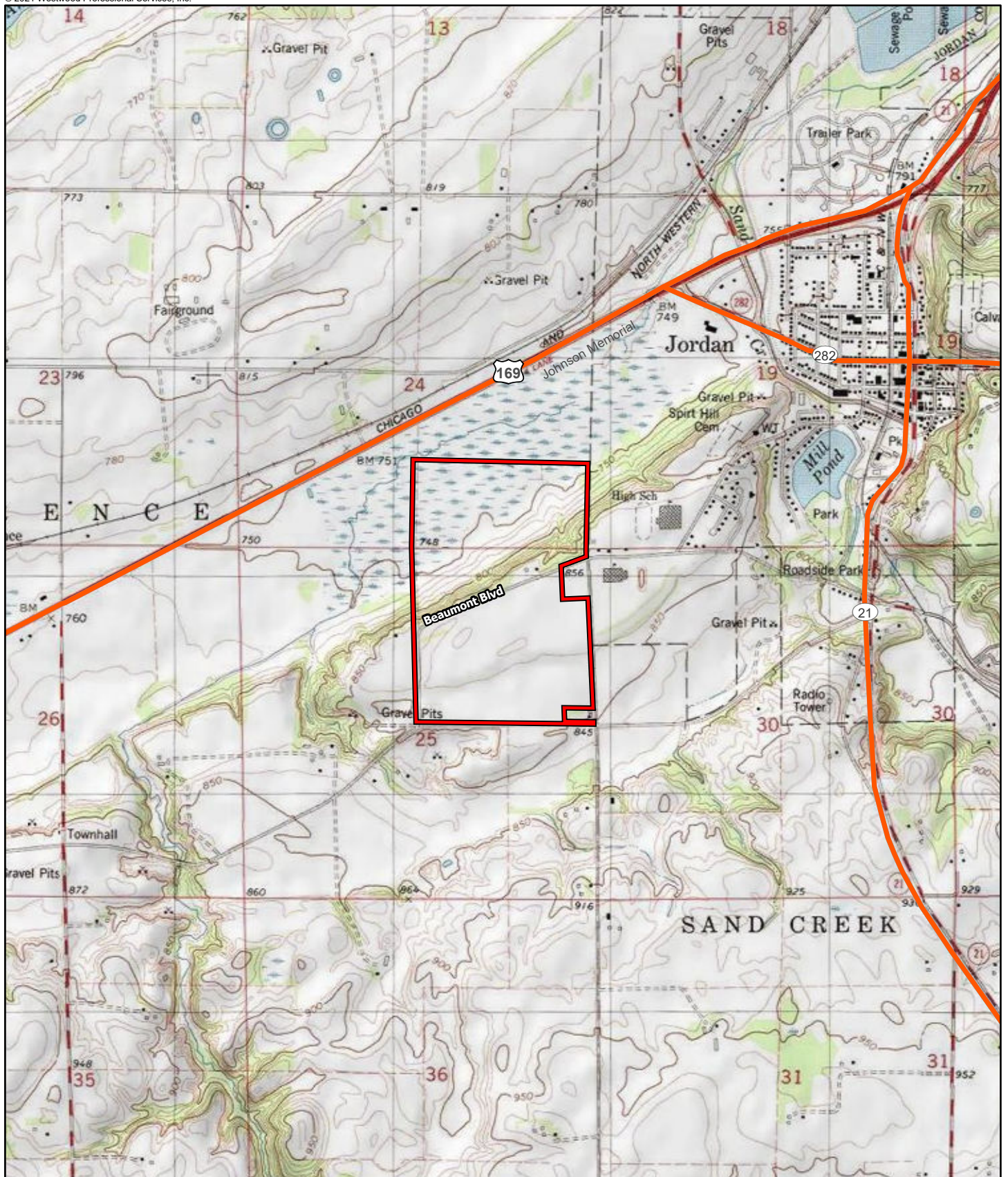
Scott County, Minnesota

**Project Location**

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.





Data Source(s): Westwood (2021); ESRI WMS USA Topo Map Basemap (Accessed 2021); U.S. Census Bureau (2020); MNDNR (2021).

### Legend

- Project Area
- Major Road



0 2,000 Feet

**Pieper Property**  
**EAW**

Scott County, Minnesota

**USGS**  
**Topography**

EXHIBIT 2

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.





Data Source(s): Westwood (2021); ESRI WMS Imagery Basemap (Accessed 2021); U.S. Census Bureau (2020).

# **Pieper Property EAW**

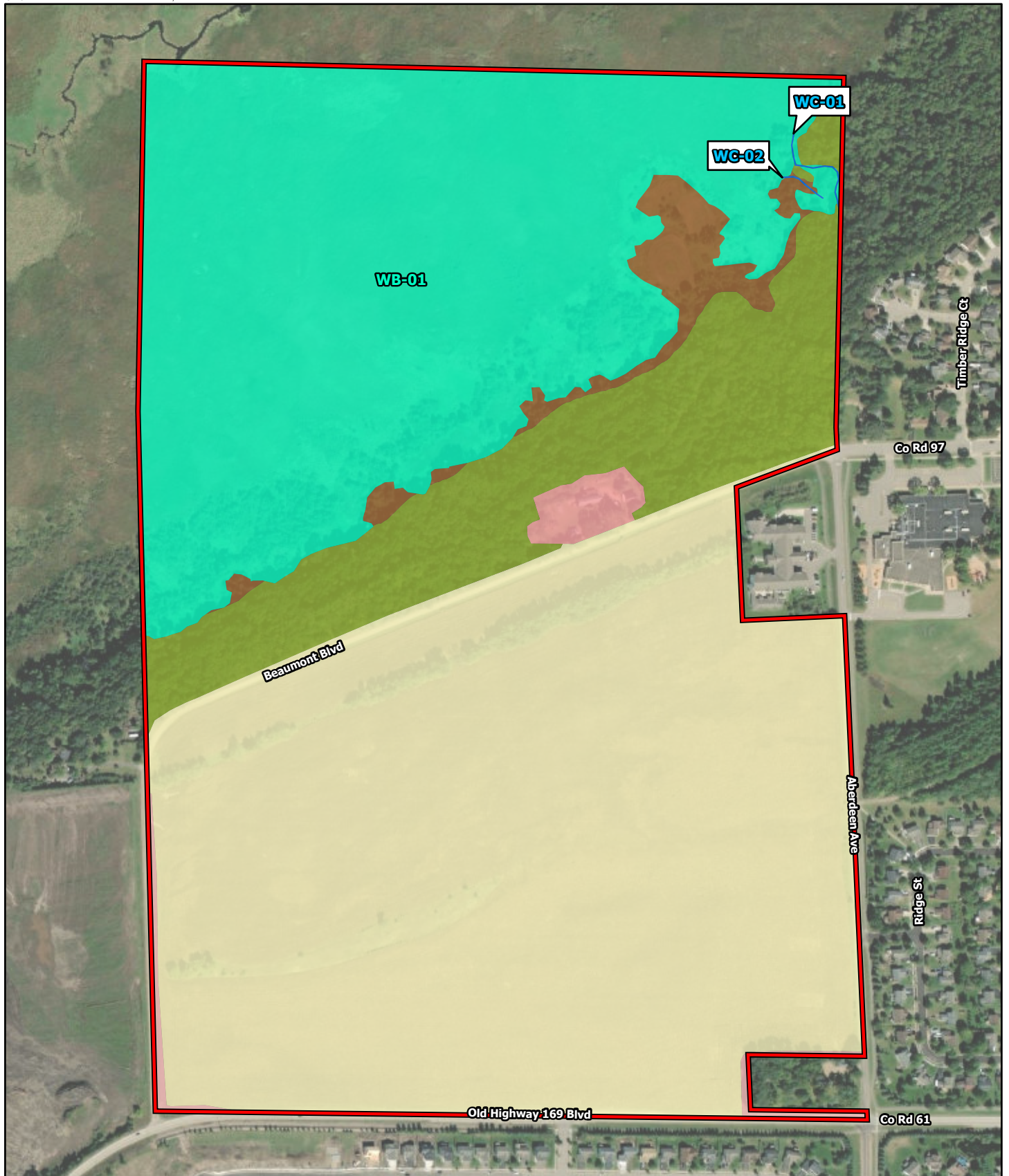
Scott County, Minnesota

Concept  
Site Plan

EXHIBIT 3

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.



Data Source(s): Westwood (2021); ESRI WMS Imagery Basemap (Accessed 2021); U.S. Census Bureau (2020); MN Geospatial Commons (2021).

0 500 Feet

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.

**Legend**

Project Area

**Field Delineated Features - Project Area Acres**

Field Delineated Watercourse - 0.08 Acres

Field Delineated Wetland - 79.98 Acres

**MLCCS Land Cover Type**

11-25% Impervious

26-50% Impervious

5-10% Impervious

51-75% Impervious

Agricultural Land

Forest

Tall Grasses

**Pieper Property**  
**EAW**

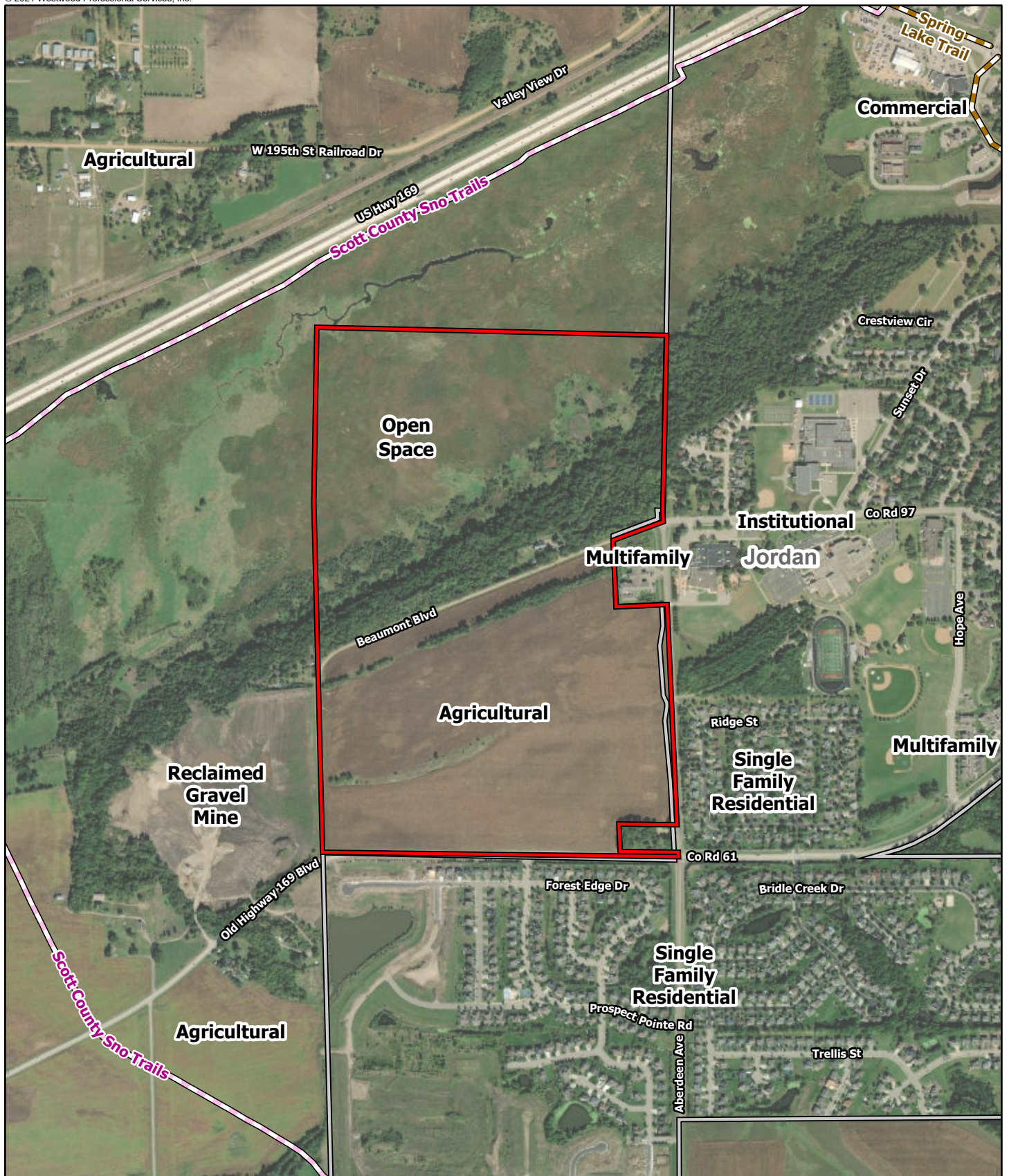
Scott County, Minnesota

**Existing Land Cover**



EXHIBIT 4

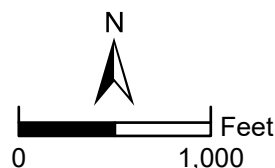




Data Source(s): Westwood (2021); ESRI WMS Imagery Basemap (Accessed 2021); U.S. Census Bureau (2020); MN Geospatial Commons (2021).

### Legend

- Project Area
- Recreational Trail
- Snowmobile Trail



**Pieper Property**  
**EAW**

Scott County, Minnesota

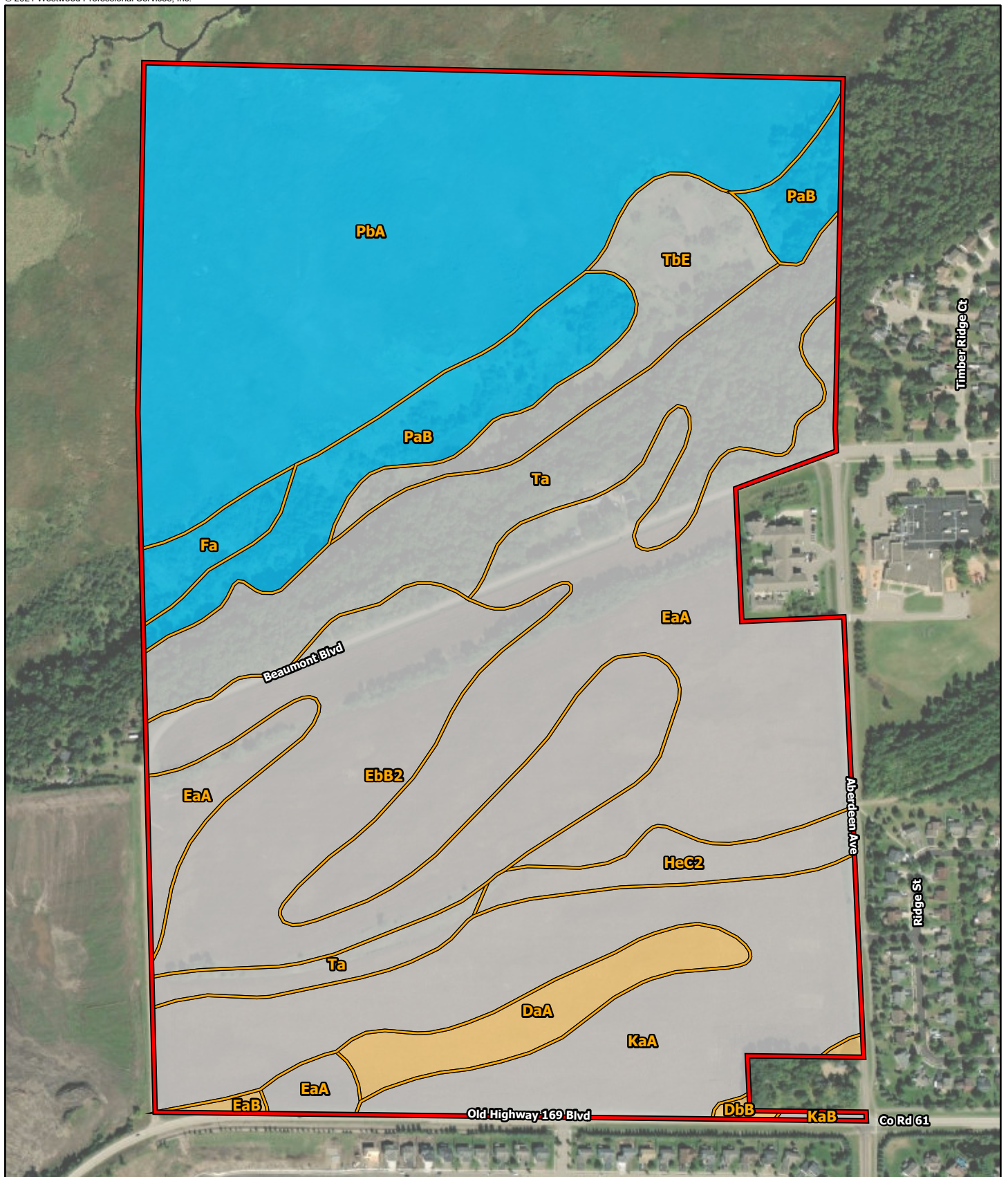
Existing Land Use

EXHIBIT 5

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.





Data Source(s): Westwood (2021); ESRI WMS Imagery Basemap (Accessed 2021); U.S. Census Bureau (2020); MN Geospatial Commons (2021); NRCS SSURGO (2021).

### Legend

- Project Area
- Soil Unit Boundary  
(See EAW text for soil type descriptions)

### Hydric Classification (Percent Hydric)

- All Hydric
- Predominantly Non-hydric
- Non-hydric

0 500 Feet

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.

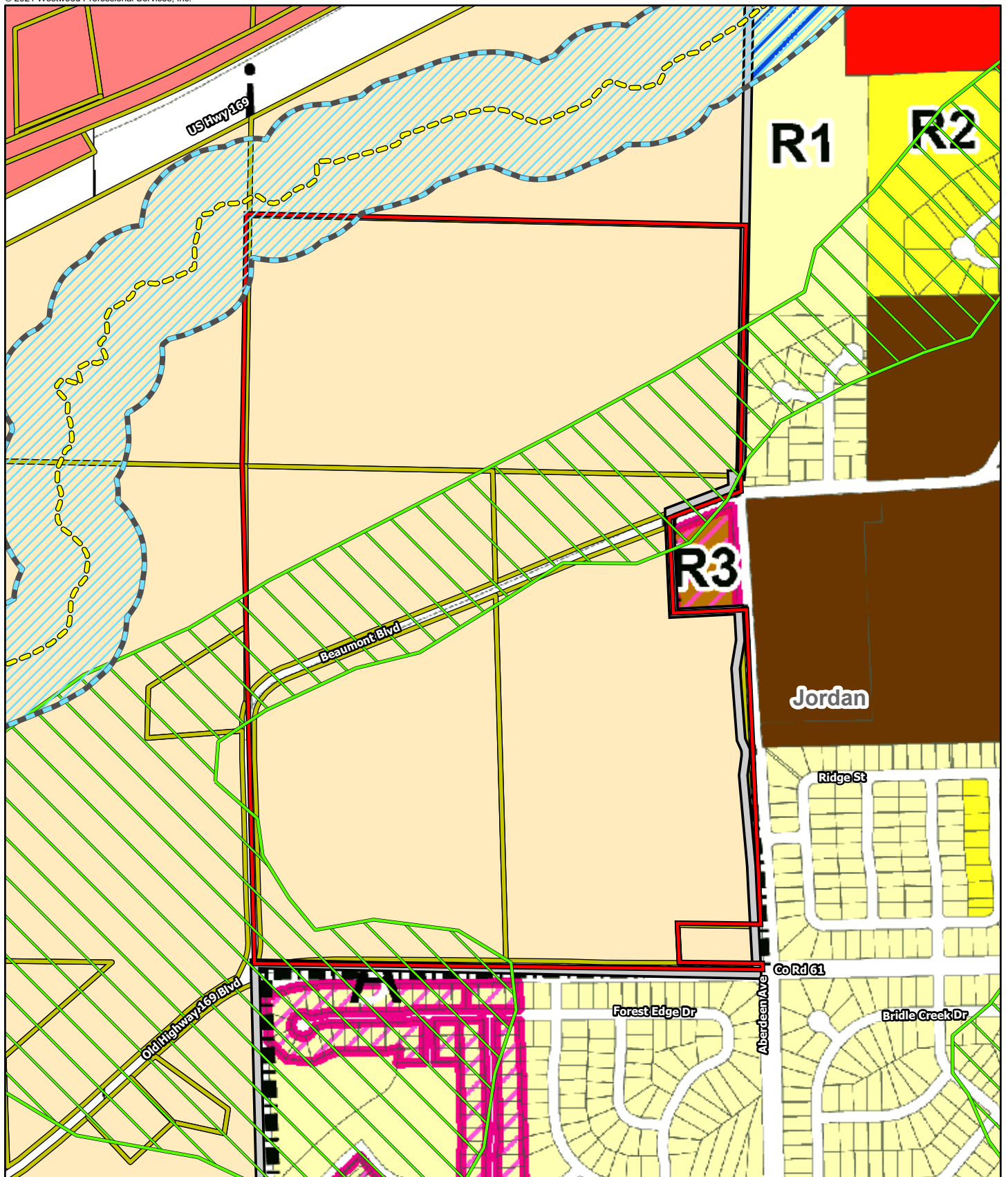


## Pieper Property EAW

Scott County, Minnesota

NRCS Soils

EXHIBIT 6



Data Source(s): Westwood (2021); ESRI WMS Imagery Basemap (Accessed 2021); U.S. Census Bureau (2020); MN Geospatial Commons (2021); Scott County (2021); City of Jordan (2021).

0 700 Feet

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.

### Legend

- Project Area
- PWI Watercourse
- Shoreland Overlay
- Bluff Impact Zone
- Municipal Boundary
- 2040 Growth Boundary

### Zoning

- Planned Unit Development
- C-3 Highway Commercial
- R-1 Single Family
- R-2 Single and Two Family Residential

- R-3 Townhouse and Multiple Family Residential
- R-4 Multiple Family Residential
- Commercial Reserve
- Urban Expansion

**Pieper Property**  
**EAW**

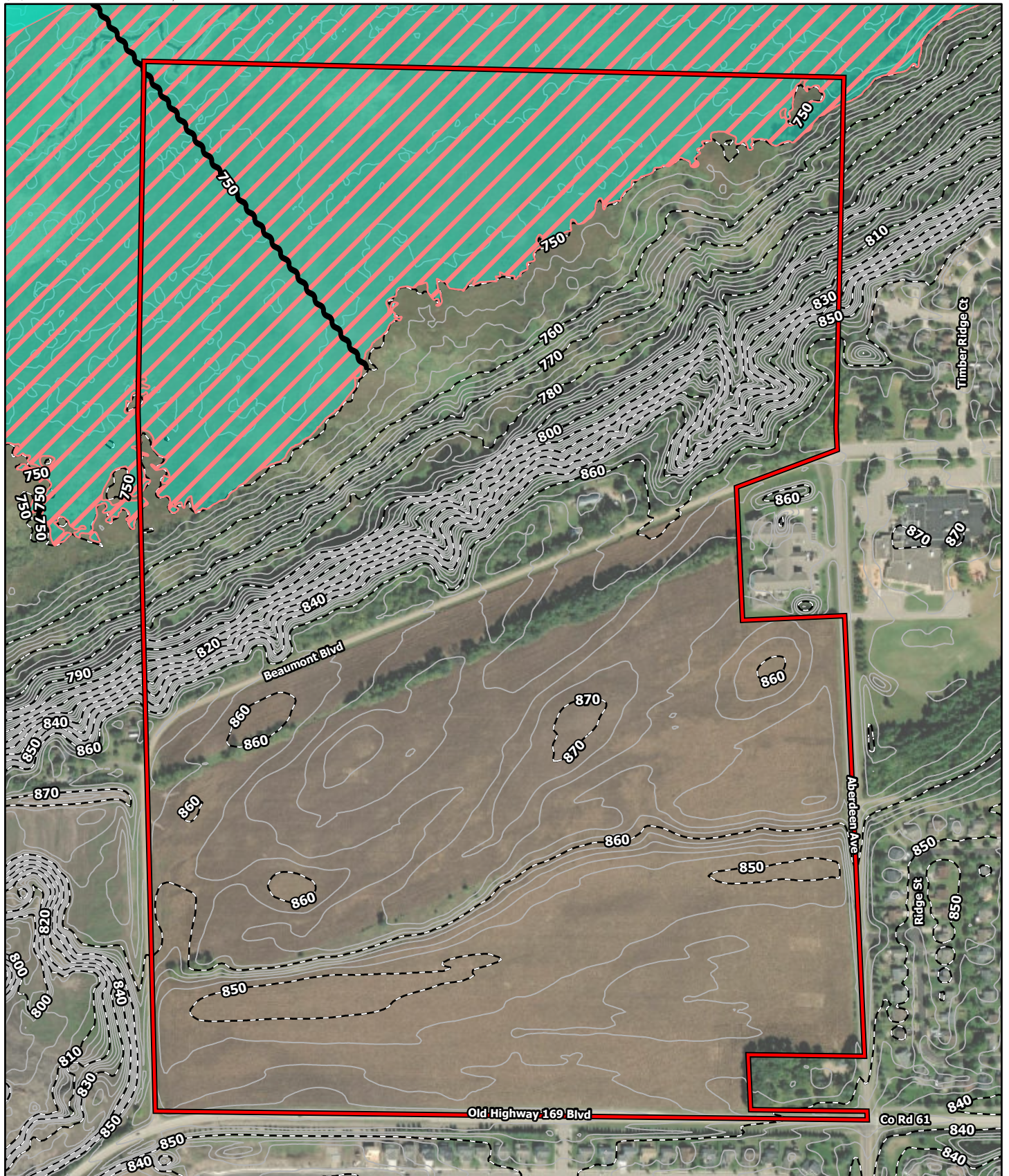
Scott County, Minnesota

**Zoning**



EXHIBIT 7





Data Source(s): Westwood (2021); ESRI WMS Imagery Basemap (Accessed 2021); U.S. Census Bureau (2020); MN Geospatial Commons (2021); FEMA NFHL (2021); MnTOPO (2021).

0 500 Feet

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.

### Legend

- Project Area
- Floodway
- 1% Annual Flood Chance
- Base Flood Elevation
- 10ft Contour
- 2ft Contour



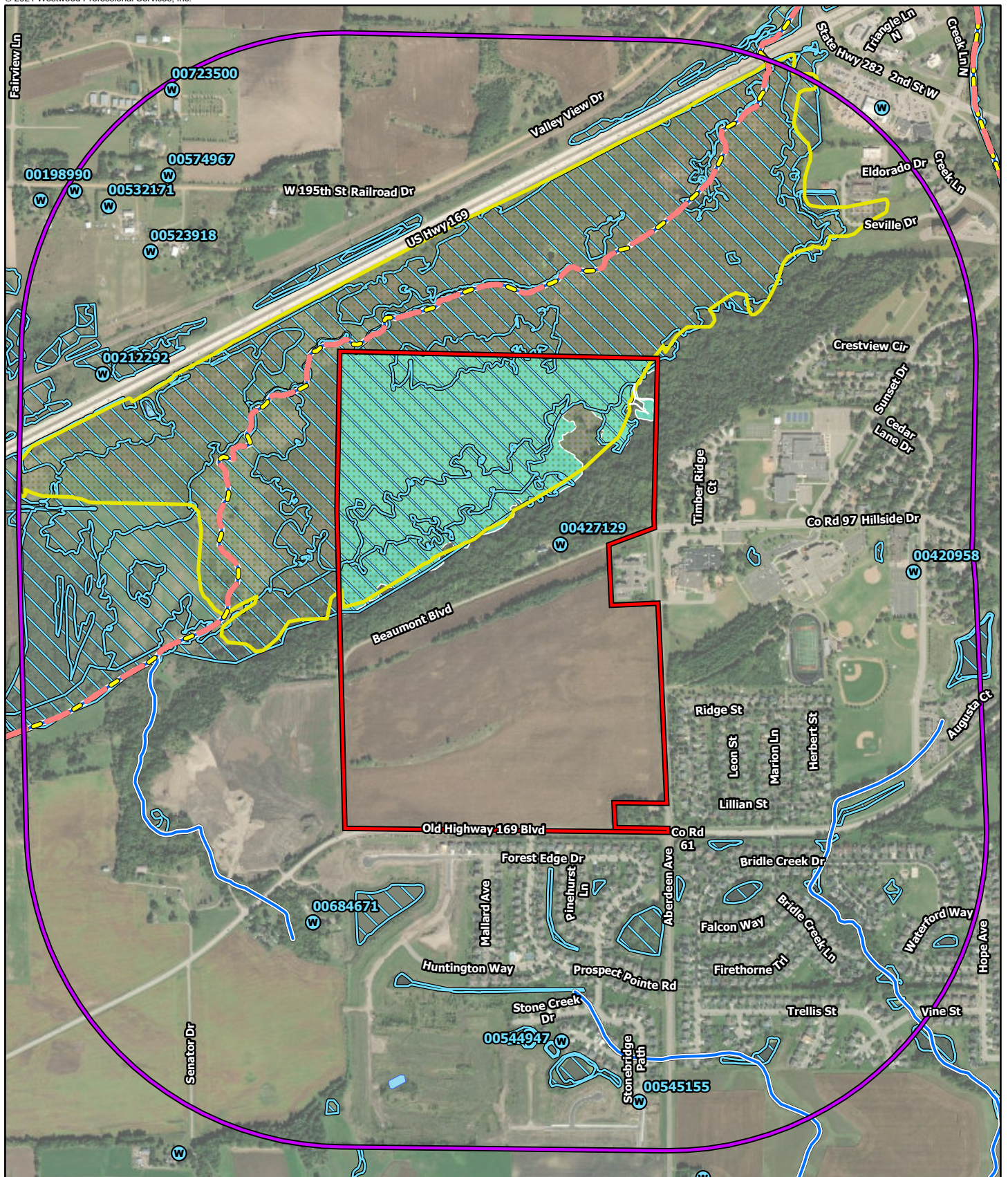
**Pieper Property**  
**EAW**

Scott County, Minnesota

Floodplain

EXHIBIT 8





Data Source(s): Westwood (2021); ESRI WMS Imagery Basemap (Accessed 2021); U.S. Census Bureau (2020); MN Geospatial Commons (2021); USGS NHD (2015); USFWS NWI (2016); FEMA NFHL (2021); EPA (2021).

0 1,100 Feet

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.

### Legend

- Project Area
- Project Area 1/2 Mile Buffer
- Water Well
- Field Delineated Wetland
- Field Delineated Watercourse
- PWI Basin
- NHD Flowline
- NHD Waterbody
- NWI Wetland
- Impaired Stream
- PWI Watercourse

## Pieper Property EAW

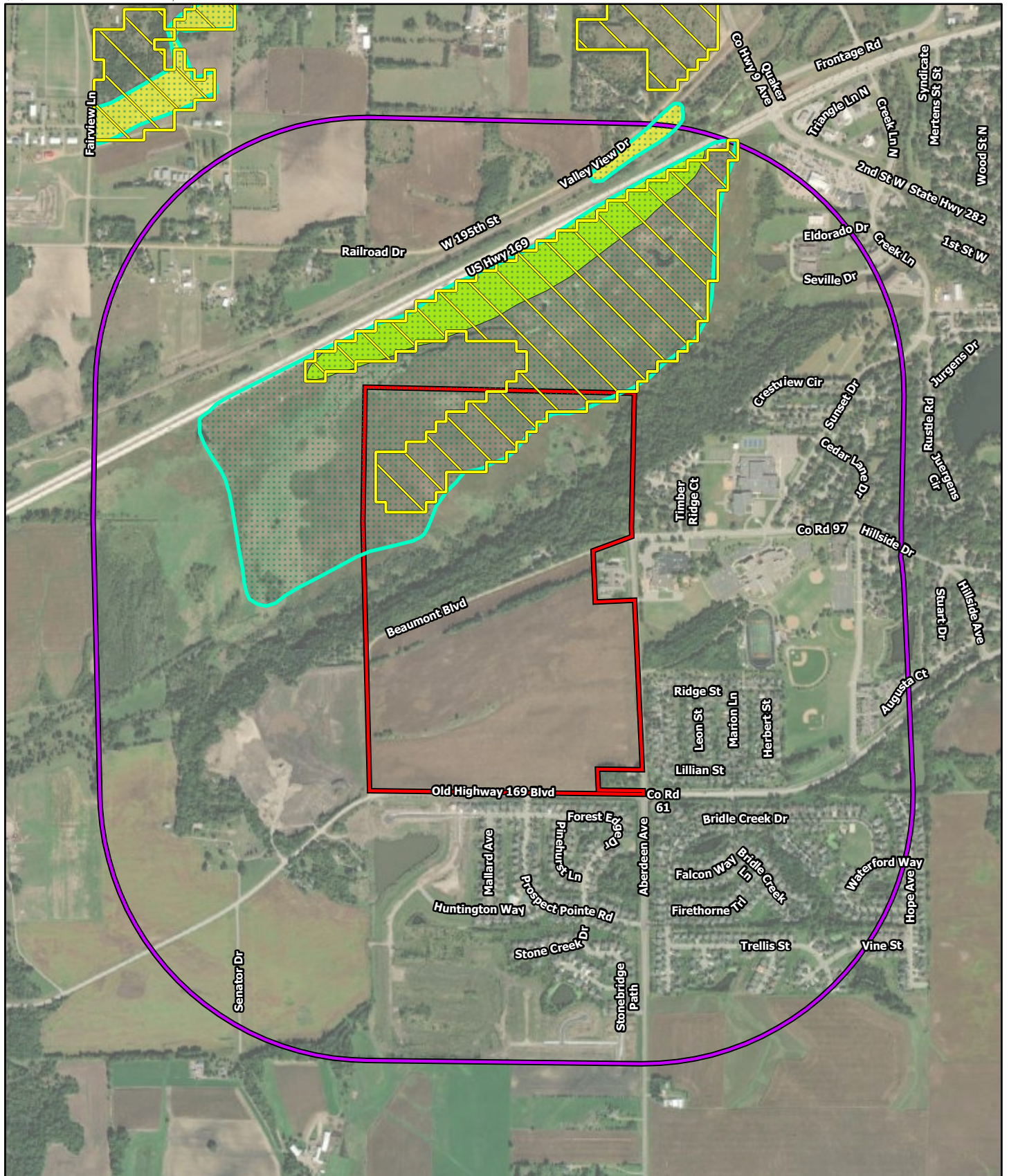
Scott County, Minnesota

Water  
Resources



EXHIBIT 9





Data Source(s): Westwood (2021); ESRI WMS Imagery Basemap (Accessed 2021); U.S. Census Bureau (2020); MN Geospatial Commons (2021); MNDNR (2021).

0 1,300 Feet

**Westwood**

Toll Free (888) 937-5150 westwoodps.com  
Westwood Professional Services, Inc.

### Legend

- Project Area
- Project Area 1/2 Mile Buffer
- MBCS Site of Moderate Biodiversity Significance

  Regionally Significant Ecological Area

### Native Plant Community

- Upland Prairie System
- Wet Meadow/Carr System



**Pieper Property**  
**EAW**

Scott County, Minnesota

Biological  
Resources

EXHIBIT 10

# **Appendix A**

## **County Well Index Well Logs**

**Pieper Residential Development EAW**  
Scott County, Minnesota

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198990

County Scott  
Quad Jordan  
Quad ID 90B

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING REPORT  
Minnesota Statutes Chapter 1031

Entry Date 02/23/1989  
Update Date 08/18/2014  
Received Date

<b>Well Name</b> ZILKA, CHERYL					<b>Township</b> 114					<b>Range</b> 24					<b>Dir</b> W					<b>Section</b> 24					<b>Subsection</b> CBBABB					<b>Well Depth</b> 280 ft.					<b>Depth Completed</b> 280 ft.					<b>Date Well Completed</b> 10/03/1983				
<b>Elevation</b> 812 ft.					<b>Elev. Method</b> 7.5 minute topographic map (+/- 5 feet)					<b>Drill Method</b> Non-specified Rotary					<b>Drill Fluid</b>																													
<b>Address</b>																									<b>Use</b> domestic					<b>Status</b> Active														
C/W 6901 195TH ST W JORDAN MN 55352																									<b>Well Hydrofractured?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>					<b>From</b>					<b>To</b>									
<b>Stratigraphy Information</b>																									<b>Casing Type</b> Single casing					<b>Joint</b> Welded														
<b>Drive Shoe?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																									<b>Above/Below</b> 1 ft.																			
<b>Casing Diameter</b> 4 in. To 156 ft. 11 lbs./ft.																									<b>Hole Diameter</b> 8 in. To 156 ft. 4 in. To 280 ft.																			
<b>Open Hole</b> From 156 ft. To 280 ft.																																												
<b>Screen?</b> <input type="checkbox"/> <b>Type</b> <b>Make</b>																																												
<b>Static Water Level</b> 65 ft. land surface Measure 10/03/1983																																												
<b>Pumping Level (below land surface)</b>																																												
<b>Wellhead Completion</b>																									Pitless adapter manufacturer MONITOR Model																			
<input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade																																												
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																												
<b>Grouting Information</b> Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified																																												
Material Amount From To																																												
neat cement 0 8 ft. 156 ft.																																												
<b>Nearest Known Source of Contamination</b>																									80 feet South Direction					Septic tank/drain field Type														
Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																												
<b>Pump</b> <input type="checkbox"/> Not Installed Date Installed 11/01/1983																																												
Manufacturer's name FLINT & WALLING																																												
Model Number BA HP 0.5 Volt 220																																												
Length of drop pipe 93 ft Capacity 10 g.p. Typ Submersible																																												
<b>Abandoned</b>																									Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No																			
<b>Variance</b>																									Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No																			
<b>Miscellaneous</b>																									First Bedrock St.Lawrence Formation					Aquifer Tunnel City-														
Last Strat Wonewoc Sandstone																									Depth to Bedrock 70 ft																			
Located by Minnesota Geological Survey																																												
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)																																												
System UTM - NAD83, Zone 15, Meters X 447418 Y 4946143																																												
Unique Number Verification Name on mailbox Input Date 03/10/1995																																												
<b>Angled Drill Hole</b>																																												
<b>Well Contractor</b>																									Hartmann Well Co. 40174 JAECKELS, R.																			
Licensee Business Lic. or Reg. No. Name of Driller																																												
<b>Minnesota Well Index Report</b>										198990										Printed on 11/05/2021 HE-01205-15																								

212292

County Scott  
Quad Jordan  
Quad ID 90B

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING REPORT  
Minnesota Statutes Chapter 1031

Entry Date 02/23/1989  
Update Date 08/18/2014  
Received Date

<b>Well Name</b> O'SICKEY,				<b>Township</b> 114	<b>Range</b> 24	<b>Dir Section</b> W 24	<b>Subsection</b> CCABCC	<b>Well Depth</b> 260 ft.				<b>Depth Completed</b> 260 ft.				<b>Date Well Completed</b> 04/22/1976																																													
<b>Elevation</b> 754 ft.				<b>Elev. Method</b> 7.5 minute topographic map (+/- 5 feet)				<b>Drill Method</b>				<b>Drill Fluid</b>																																																	
<b>Address</b>  C/W 19805 JOHNSON MEMORIAL DR JORDAN MN 55352								<b>Use</b> domestic				<b>Status</b> Active																																																	
<b>Stratigraphy Information</b> <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>DRIFT-CLAY</td><td>0</td><td>3</td><td></td><td></td></tr><tr><td>FINE SAND</td><td>3</td><td>14</td><td></td><td></td></tr><tr><td>LIMESTONE</td><td>14</td><td>15</td><td></td><td></td></tr><tr><td>CLAY</td><td>15</td><td>26</td><td>BLU/GRY</td><td></td></tr><tr><td>SANDROCK</td><td>26</td><td>28</td><td></td><td></td></tr><tr><td>LIMESTONE &amp;</td><td>28</td><td>90</td><td></td><td></td></tr><tr><td>SHALE</td><td>90</td><td>190</td><td></td><td></td></tr><tr><td>SOAPSTONE</td><td>190</td><td>220</td><td>GREEN</td><td></td></tr><tr><td>SANDROCK-</td><td>220</td><td>260</td><td>WHITE</td><td></td></tr></table>								Geological Material	From	To (ft.)	Color	Hardness	DRIFT-CLAY	0	3			FINE SAND	3	14			LIMESTONE	14	15			CLAY	15	26	BLU/GRY		SANDROCK	26	28			LIMESTONE &	28	90			SHALE	90	190			SOAPSTONE	190	220	GREEN		SANDROCK-	220	260	WHITE		<b>Well Hydrofractured?</b> <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> <b>From</b> <b>To</b>			
								Geological Material	From	To (ft.)	Color	Hardness																																																	
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SANDROCK-	220	260	WHITE																																																										
<b>Casing Type</b> Single casing				<b>Joint</b>																																																									
<b>Drive Shoe?</b> <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> <b>Above/Below</b> 0 ft.																																																													
<b>Casing Diameter</b> 4 in. To 150 ft. lbs./ft.																																																													
<b>Open Hole</b> From 150 ft. To 260 ft.																																																													
<b>Screen?</b> <input type="checkbox"/> <b>Type</b> <b>Make</b>																																																													
<b>Static Water Level</b> 13 ft. land surface Measure 04/22/1976																																																													
<b>Pumping Level (below land surface)</b>																																																													
<b>Wellhead Completion</b> Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																																													
<b>Grouting Information</b> Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Specified																																																													
<b>Nearest Known Source of Contamination</b> feet Direction Type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No																																																													
<b>Pump</b> <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model Number HP 0.5 Volt Length of drop pipe ft Capacity g.p. Typ Submersible																																																													
<b>Abandoned</b> Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No																																																													
<b>Variance</b> Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No																																																													
<b>Miscellaneous</b> First Bedrock St.Lawrence Formation Aquifer Tunnel City- Last Strat Wonewoc Sandstone Depth to Bedrock 26 ft Located by Minnesota Geological Survey Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table) System UTM - NAD83, Zone 15, Meters X 447489 Y 4945681 Unique Number Verification Input Date 01/01/1990																																																													
<b>Angled Drill Hole</b>																																																													
<b>Well Contractor</b> Hartmann Well Co. 40174 Licensee Business Lic. or Reg. No. Name of Driller																																																													
<b>Remarks</b> 189-B-10				212292				Printed on 11/05/2021 HE-01205-15																																																					

420958

County Scott  
Quad Jordan  
Quad ID 90B

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING REPORT  
Minnesota Statutes Chapter 1031

Entry Date 06/29/1992  
Update Date 08/18/2014  
Received Date

<b>Well Name</b> JORDAN TW				<b>Township</b> 114	<b>Range</b> 23	<b>Dir</b> W	<b>Section</b> 30	<b>Subsection</b> BAACBD	<b>Well Depth</b> 593 ft.				<b>Depth Completed</b> 593 ft.				<b>Date Well Completed</b> 01/10/1990			
<b>Elevation</b> 849 ft.				<b>Elev. Method</b> 7.5 minute topographic map (+/- 5 feet)				<b>Drill Method</b> Non-specified Rotary				<b>Drill Fluid</b>								
<b>Address</b>									<b>Use</b> test well				<b>Status</b> Sealed							
Contact 201 1ST ST E JORDAN MN 55352									<b>Well Hydrofractured?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>				<b>From</b> To							
Well HOPE AV JORDAN MN 55352									<b>Casing Type</b> Step down				<b>Joint</b>							
<b>Stratigraphy Information</b>									<b>Drive Shoe?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>				<b>Above/Below</b> 2.5 ft.							
<b>Geological Material</b>									<b>Casing Diameter</b>				<b>Weight</b>							
TOP SOIL									8 in. To				308 ft. lbs./ft.							
CLAY									4 in. To				527 ft. lbs./ft.							
COARSE SAND																				
ST.LAWRENCE/CLAY																				
ST.LAWRENCE																				
FRANCONIAN/CLAY																				
FRANCONIAN/CLAY																				
FRANCONIAN/CLAY																				
FRANCONIAN/CLAY																				
IRONTON/GALESVILLE																				
IRONTON GALESVILLE																				
EAU																				
CAMBRIAN ZONE																				
CAMBRIAN ZONE																				
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CAMBRIAN ZONE																				
CAMBRIAN ZONE																				
CAMBRIAN ZONE																				
MT. SIMON-SHALE																				
MT. SIMON-SHALE																				
NT. SIMON-WHITE																				
MT.SIMON-WHITE																				
MT. SIMON-WHITE																				
MT.SIMON-GRN SHALE																				
MT.SIMON-PIECES OF																				
MT. SIMON FINE																				
SOLAR CHURCH-RED																				
<b>Open Hole</b> From 525 ft. To 593 ft.									<b>Screen?</b> <input type="checkbox"/>				<b>Type</b> <b>Make</b>							
<b>Static Water Level</b>									109. ft. land surface				Measure 01/10/1990							
<b>Pumping Level (below land surface)</b>									134 ft. 25 hrs. Pumping at				60 g.p.m.							
<b>Wellhead Completion</b>									Pitless adapter manufacturer				Model							
<input type="checkbox"/> Casing Protection									<input checked="" type="checkbox"/> 12 in. above grade											
<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																				
<b>Grouting Information</b>									Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified											
Material									Amount				From To							
													0 ft. 525 ft.							
neat cement													0 ft. 306 ft.							
<b>Nearest Known Source of Contamination</b>									feet				Direction							
Well disinfected upon completion?									<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Type							
<b>Pump</b> <input type="checkbox"/> Not Installed									Date Installed											
Manufacturer's name																				
Model Number									HP				Volt							
Length of drop pipe									ft Capacity				g.p. Typ							
<b>Abandoned</b>									Does property have any not in use and not sealed well(s)?				<input type="checkbox"/> Yes <input type="checkbox"/> No							
<b>Variance</b>									Was a variance granted from the MDH for this well?				<input type="checkbox"/> Yes <input type="checkbox"/> No							
<b>Miscellaneous</b>									First Bedrock St.Lawrence Formation				Aquifer Mt.Simon							
Last Strat Mt.Simon Sandstone									Depth to Bedrock 101				ft							
Located by Minnesota Geological Survey																				
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)																				
System UTM - NAD83, Zone 15, Meters									X 449537				Y 4945181							
Unique Number Verification									Information from				Input Date 03/10/1995							
<b>Angled Drill Hole</b>																				
<b>Well Contractor</b>									Layne Well Co.				27010 ERVIN, B.							
Licensee Business									Lic. or Reg. No.				Name of Driller							
<b>Remarks</b>									M.G.S. NO.3082. GAMMA LOGGED 1-11-1990.											
<b>Minnesota Well Index Report</b>									420958				Printed on 11/05/2021 HE-01205-15							



Minnesota Unique Well Number		County Scott		MINNESOTA DEPARTMENT OF HEALTH		Entry Date 04/16/1991	
427129		Quad Jordan		WELL AND BORING REPORT		Update Date 02/14/2014	
		Quad ID 90B		Minnesota Statutes Chapter 1031		Received Date	
Well Name Township Range Dir Section Subsection				Well Depth Depth Completed Date Well Completed			
PIEPER, HARRY 114 24 W 25 AABADC				143 ft. 142 ft. 11/29/1986			
Elevation 863 ft. Elev. Method CALC FROM 2-FOOT COUNTY DEM				Drill Method Non-specified Rotary Drill Fluid			
Address				Use domestic Status Active			
C/W 6200 BEAUMONT BL JORDAN MN 55352				Well Hydrofractured? Yes No From To			
Stratigraphy Information				Casing Type Single casing Joint Threaded			
				Drive Shoe? Yes X No Above/Below 1 ft.			
Geological Material From To (ft.) Color Hardness				Casing Diameter Weight Hole Diameter			
SANDY CLAY 0 15 BROWN MEDIUM				4 in. To 137 ft. 11 lbs./ft. 6 in. To 117 ft.			
SAND & GRAVEL 15 97 BROWN MEDIUM				4 in. To 142 ft.			
CLAY 97 125 BLUE MEDIUM							
SAND 125 127 BROWN MEDIUM							
CLAY 127 134 BLUE MEDIUM							
COARSER SAND 134 142 BROWN MEDIUM							
ROCKY SAND 142 143 BROWN MEDIUM							
				Open Hole From ft. To ft.			
				Screen? X Type stainless Make JOHNSON			
				Diameter Slot/Gauze Length Set			
				3.7 in. 12 7 ft. 137 ft. 142 ft.			
				Static Water Level			
				77 ft. land surface Measure 11/29/1986			
				Pumping Level (below land surface)			
				Wellhead Completion			
				Pitless adapter manufacturer MONITOR Model			
				Casing Protection 12 in. above grade			
				At-grade (Environmental Wells and Borings ONLY)			
				Grouting Information Well Grouted? X Yes No Not Specified			
				Material Amount From To			
				cuttings ft. 117 ft.			
				bentonite ft. 117 ft.			
				Nearest Known Source of Contamination			
				50 feet South Direction Septic tank/drain field Type			
				Well disinfected upon completion? X Yes No			
				Pump Not Installed Date Installed 12/04/1986			
				Manufacturer's name AERMOTOR			
				Model Number A12-75 HP 0.75 Volt 220			
				Length of drop pipe 108 ft Capacity 12 g.p. Typ Submersible			
				Abandoned			
				Does property have any not in use and not sealed well(s)? Yes No X			
				Variance			
				Was a variance granted from the MDH for this well? Yes No			
				Miscellaneous			
				First Bedrock Aquifer Quat. buried			
				Last Strat sand +larger-brown Depth to Bedrock ft			
				Located by Minnesota Geological Survey			
				Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or			
				System UTM - NAD83, Zone 15, Meters X 448645 Y 4945250			
				Unique Number Verification Address verification Input Date 12/03/2004			
				Angled Drill Hole			
				Well Contractor			
				Hartmann Well Co. 40174 HARTMANN, R			
				Licensee Business Lic. or Reg. No. Name of Driller			
Remarks							
Minnesota Well Index Report		427129				Printed on 11/05/2021	
						HE-01205-15	



523918

County Scott  
Quad Jordan  
Quad ID 90B

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING REPORT  
Minnesota Statutes Chapter 1031

Entry Date 06/09/1993  
Update Date 08/18/2014  
Received Date

<b>Well Name</b> SIWEK, DAVID	<b>Township</b> 114	<b>Range</b> 24	<b>Dir Section</b> W 24	<b>Subsection</b> CBADCA	<b>Well Depth</b> 280 ft.	<b>Depth Completed</b> 280 ft.	<b>Date Well Completed</b> 02/03/1993																																													
<b>Elevation</b> 789 ft.	<b>Elev. Method</b> CALC FROM 2-FOOT COUNTY DEM	<b>Drill Method</b> Non-specified Rotary				<b>Drill Fluid</b> Qwik gel																																														
<b>Address</b>  C/W 6757 195TH ST W JORDAN MN					<b>Use</b> domestic	<b>Status</b> Active																																														
<b>Stratigraphy Information</b> <table><thead><tr><th>Geological Material</th><th>From</th><th>To (ft.)</th><th>Color</th><th>Hardness</th></tr></thead><tbody><tr><td>SANDY SOIL</td><td>0</td><td>23</td><td>BROWN</td><td>SOFT</td></tr><tr><td>SANDY CLAY</td><td>23</td><td>48</td><td>GREEN</td><td>MEDIUM</td></tr><tr><td>SANDY CLAY (ROCKY)</td><td>48</td><td>70</td><td>GRN/RED</td><td>MEDIUM</td></tr><tr><td>LIMESTONE</td><td>70</td><td>78</td><td>LT. GRN</td><td>MEDIUM</td></tr><tr><td>SHALE</td><td>78</td><td>85</td><td>GREEN</td><td>MEDIUM</td></tr><tr><td>LIMESTONE</td><td>85</td><td>125</td><td>GREEN</td><td>HARD</td></tr><tr><td>SHALE</td><td>125</td><td>253</td><td>GREEN</td><td>HARD</td></tr><tr><td>SANDROCK</td><td>253</td><td>280</td><td>WHITE</td><td>MEDIUM</td></tr></tbody></table>					Geological Material	From	To (ft.)	Color	Hardness	SANDY SOIL	0	23	BROWN	SOFT	SANDY CLAY	23	48	GREEN	MEDIUM	SANDY CLAY (ROCKY)	48	70	GRN/RED	MEDIUM	LIMESTONE	70	78	LT. GRN	MEDIUM	SHALE	78	85	GREEN	MEDIUM	LIMESTONE	85	125	GREEN	HARD	SHALE	125	253	GREEN	HARD	SANDROCK	253	280	WHITE	MEDIUM	<b>Well Hydrofractured?</b> <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> <b>From</b> <b>To</b>		
					Geological Material	From	To (ft.)	Color	Hardness																																											
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					SHALE	125	253	GREEN	HARD																																											
					SANDROCK	253	280	WHITE	MEDIUM																																											
<b>Casing Type</b> Single casing <input type="checkbox"/> <b>Joint</b> <input type="checkbox"/> <b>Welded</b>																																																				
<b>Drive Shoe?</b> <b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/> <b>Above/Below</b>																																																				
<b>Casing Diameter</b> 4 in. To 215 ft. 11 lbs./ft.			<b>Hole Diameter</b> 8 in. To 215 ft. 4 in. To 280 ft.																																																	
<b>Open Hole</b> From 215 ft. To 280 ft.																																																				
<b>Screen?</b> <input type="checkbox"/> <b>Type</b> <b>Make</b>																																																				
<b>Static Water Level</b> 57 ft. land surface Measure 02/03/1993																																																				
<b>Pumping Level (below land surface)</b>																																																				
<b>Wellhead Completion</b> Pitless adapter manufacturer <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)			<b>Model</b>																																																	
<b>Grouting Information</b> Material Amount From To neat cement 1.75 Cubic yards 10 ft. 215 ft.			<b>Well Grouted?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified																																																	
<b>Nearest Known Source of Contamination</b> <u>66</u> feet <u>Northeas</u> Direction <u>Septic tank/drain field</u> Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																				
<b>Pump</b> <input type="checkbox"/> Not Installed <input type="checkbox"/> Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ <u>Submersible</u>																																																				
<b>Abandoned</b> Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																																				
<b>Variance</b> Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No																																																				
<b>Miscellaneous</b> First Bedrock St.Lawrence Formation Aquifer Tunnel City- Last Strat Wonewoc Sandstone Depth to Bedrock 70 ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or System UTM - NAD83, Zone 15, Meters X 447610 Y 4945990 Unique Number Verification Address verification Input Date 12/03/2004																																																				
<b>Angled Drill Hole</b>																																																				
<b>Well Contractor</b> Hartmann Well Co. 40174 JAECKELS, R Licensee Business Lic. or Reg. No. Name of Driller																																																				

Remarks

532171

County Scott  
Quad Jordan  
Quad ID 90B

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING REPORT  
Minnesota Statutes Chapter 1031

Entry Date 01/09/1994  
Update Date 08/18/2014  
Received Date

<b>Well Name</b> KALKES BROS.					<b>Township</b> 114		<b>Range</b> 24		<b>Dir Section</b> W 24		<b>Subsection</b> CBABCB		<b>Well Depth</b> 274 ft.		<b>Depth Completed</b> 274 ft.		<b>Date Well Completed</b> 08/31/1993																														
<b>Elevation</b> 801 ft.					<b>Elev. Method</b>		CALC FROM 2-FOOT COUNTY DEM										<b>Drill Method</b> Non-specified Rotary		<b>Drill Fluid</b> Qwik gel																												
<b>Address</b>														<b>Use</b> domestic		<b>Status</b> Active																															
C/W 6851 195TH ST W MN														<b>Well Hydrofractured?</b>		Yes <input type="checkbox"/> No <input type="checkbox"/>		<b>From</b>		<b>To</b>																											
<b>Stratigraphy Information</b>														<b>Casing Type</b> Single casing		<b>Joint</b>		Threaded																													
<table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>SAND</td><td>0</td><td>18</td><td>BROWN</td><td>SOFT</td></tr><tr><td>GRAVEL</td><td>18</td><td>64</td><td>BROWN</td><td>SOFT</td></tr><tr><td>GRAVEL &amp; SHALE</td><td>64</td><td>76</td><td>BRN/GRN</td><td>SFT-HRD</td></tr><tr><td>SHALE ST. LAWRENCE</td><td>76</td><td>128</td><td></td><td>SFT-HRD</td></tr><tr><td>SHALE &amp; SANDSTONE</td><td>128</td><td>274</td><td></td><td>SFT-HRD</td></tr></table>														Geological Material	From	To (ft.)	Color	Hardness	SAND	0	18	BROWN	SOFT	GRAVEL	18	64	BROWN	SOFT	GRAVEL & SHALE	64	76	BRN/GRN	SFT-HRD	SHALE ST. LAWRENCE	76	128		SFT-HRD	SHALE & SANDSTONE	128	274		SFT-HRD	<b>Drive Shoe?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		<b>Above/Below</b>	
Geological Material	From	To (ft.)	Color	Hardness																																											
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SHALE ST. LAWRENCE	76	128		SFT-HRD																																											
SHALE & SANDSTONE	128	274		SFT-HRD																																											
<table><tr><td><b>Casing Diameter</b></td><td colspan="4"><b>Weight</b></td><td colspan="4"><b>Hole Diameter</b></td></tr><tr><td>4 in. To</td><td>132 ft.</td><td>11 lbs./ft.</td><td colspan="2"></td><td>8.5 in. To</td><td>132 ft.</td><td colspan="2"></td></tr><tr><td></td><td></td><td></td><td colspan="2"></td><td>3.8 in. To</td><td>274 ft.</td><td colspan="2"></td></tr></table>														<b>Casing Diameter</b>	<b>Weight</b>				<b>Hole Diameter</b>				4 in. To	132 ft.	11 lbs./ft.			8.5 in. To	132 ft.								3.8 in. To	274 ft.									
<b>Casing Diameter</b>	<b>Weight</b>				<b>Hole Diameter</b>																																										
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					3.8 in. To	274 ft.																																									
<b>Open Hole</b>														From 132 ft.		To 274 ft.																															
<b>Screen?</b> <input type="checkbox"/>														<b>Type</b>		<b>Make</b>																															
<b>Static Water Level</b>																																															
58 ft. land surface														Measure		08/31/1993																															
<b>Pumping Level (below land surface)</b>																																															
63 ft. 1 hrs. Pumping at														40		g.p.m.																															
<b>Wellhead Completion</b>																																															
Pitless adapter manufacturer														WHITEWATER		Model SU45.5																															
<input type="checkbox"/> Casing Protection														<input type="checkbox"/> 12 in. above grade																																	
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Material														Amount		From		To																													
neat cement																ft. 132		ft.																													
<b>Nearest Known Source of Contamination</b>																																															
25 feet														South Direction		Septic tank/drain field		Type																													
Well disinfected upon completion?														<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																	
<b>Pump</b> <input type="checkbox"/> Not Installed Date Installed																																															
Manufacturer's name														AERMOTOR																																	
Model Number														HP 0.75		Volt 220																															
Length of drop pipe 84 ft														Capacity 10		g.p.		Typ Submersible																													
<b>Abandoned</b>																																															
Does property have any not in use and not sealed well(s)?														<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																	
<b>Variance</b>																																															
Was a variance granted from the MDH for this well?														<input type="checkbox"/> Yes <input type="checkbox"/> No																																	
<b>Miscellaneous</b>																																															
First Bedrock														St.Lawrence Formation		Aquifer		Tunnel City/Lone																													
Last Strat														Tunnel City/Lone Rock Fm		Depth to Bedrock		76 ft																													
Located by														Minnesota Geological Survey																																	
Locate Method														Digitization (Screen) - Map (1:24,000) (15 meters or																																	
System														UTM - NAD83, Zone 15, Meters		X 447504		Y 4946104																													
Unique Number Verification														Address verification		Input Date		12/03/2004																													
<b>Angled Drill Hole</b>																																															
<b>Well Contractor</b>																																															
Leuthner Well Co.														10125		SCHMIEG, K																															
Licensee Business														Lic. or Reg. No.		Name of Driller																															

**MINNESOTA DEPARTMENT OF HEALTH**  
**WELL AND BORING REPORT**  
*Minnesota Statutes Chapter 1031*

<b>Entry Date</b>	07/28/1998
<b>Update Date</b>	02/14/2014
<b>Received Date</b>	01/09/1995

<b>Well Name</b> CAREY, PAUL					<b>Township</b> 114	<b>Range</b> 24	<b>Dir</b> W	<b>Section</b> 25	<b>Subsection</b> DDBDBD	<b>Well Depth</b> 205 ft.					<b>Depth Completed</b> 205 ft.					<b>Date Well Completed</b> 12/07/1994																								
<b>Elevation</b> 870 ft.					<b>Elev. Method</b> 7.5 minute topographic map (+/- 5 feet)					<b>Drill Method</b> Non-specified Rotary															<b>Drill Fluid</b> Qwik gel																			
<b>Address</b>  C/W 20788 ABERDEEN AV JORDAN MN 55352										<b>Use</b> domestic															<b>Status</b> Active																			
<b>Stratigraphy Information</b> <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>CLAY</td><td>0</td><td>23</td><td>YELLOW</td><td>SOFT</td></tr><tr><td>CLAY &amp; GRAVEL</td><td>23</td><td>192</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>GRAVEL</td><td>192</td><td>203</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>COARSE GRAVEL</td><td>203</td><td>205</td><td>BROWN</td><td>MEDIUM</td></tr></table>										Geological Material	From	To (ft.)	Color	Hardness	CLAY	0	23	YELLOW	SOFT	CLAY & GRAVEL	23	192	GRAY	MEDIUM	GRAVEL	192	203	BROWN	MEDIUM	COARSE GRAVEL	203	205	BROWN	MEDIUM	<b>Well Hydrofractured?</b> <b>Yes</b> <input type="checkbox"/> <b>No</b> <input type="checkbox"/> <b>From</b> <b>To</b>									
										Geological Material	From	To (ft.)	Color	Hardness																														
										CLAY	0	23	YELLOW	SOFT																														
										CLAY & GRAVEL	23	192	GRAY	MEDIUM																														
										GRAVEL	192	203	BROWN	MEDIUM																														
										COARSE GRAVEL	203	205	BROWN	MEDIUM																														
										<b>Casing Type</b> Single casing					<b>Joint</b> Welded																													
										<b>Drive Shoe?</b> <b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/> <b>Above/Below</b>																																		
										<b>Casing Diameter</b> 4 in. To 203 ft.					<b>Weight</b> 11 lbs./ft.					<b>Hole Diameter</b> 8 in. To 203 ft. 4 in. To 205 ft.																								
										<b>Open Hole</b> From 203 ft. To 205 ft.																																		
<b>Screen?</b> <input type="checkbox"/> <b>Type</b> <b>Make</b>																																												
<b>Static Water Level</b> 83 ft. land surface Measure 12/07/1994																																												
<b>Pumping Level (below land surface)</b>																																												
<b>Wellhead Completion</b> Pitless adapter manufacturer MERRILL Model SPK <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																												
<b>Grouting Information</b> Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To bentonite 8 Sacks ft. 30 ft.																																												
<b>Nearest Known Source of Contamination</b> 53 feet Northwes Direction Septic tank/drain field Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																												
<b>Pump</b> <input type="checkbox"/> Not Installed Date Installed 12/08/1994 Manufacturer's name AERMOTOR Model Number A12&B-75 HP 0.75 Volt 230 Length of drop pipe 105 ft Capacity 12 g.p. Type Submersible																																												
<b>Abandoned</b> Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																												
<b>Variance</b> Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No																																												
<b>Miscellaneous</b> First Bedrock Aquifer Quat. buried Last Strat gravel (+larger)-brown Depth to Bedrock ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or System UTM - NAD83, Zone 15, Meters X 448648 Y 4943996 Unique Number Verification Address verification Input Date 07/14/2005																																												
<b>Angled Drill Hole</b>																																												
<b>Well Contractor</b> Gary's Well Co. 70417 BURRELL, F. Licensee Business Lic. or Reg. No. Name of Driller																																												

<b>Minnesota Well Index Report</b>				<b>544947</b>		Printed on 11/05/2021 HE-01205-15	
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545155

County Scott  
Quad Jordan  
Quad ID 90B

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING REPORT  
Minnesota Statutes Chapter 1031

Entry Date 04/11/1995  
Update Date 09/06/2020  
Received Date

<b>Well Name</b> SCHANSBERG, <b>Township</b> 114 <b>Range</b> 24 <b>Dir Section</b> W 25 <b>Subsection</b> DDDACD					<b>Well Depth</b> 360 ft.		<b>Depth Completed</b> 360 ft.		<b>Date Well Completed</b> 06/06/1994																																									
<b>Elevation</b> 898 ft. <b>Elev. Method</b> 7.5 minute topographic map (+/- 5 feet)					<b>Drill Method</b> Non-specified Rotary		<b>Drill Fluid</b>																																											
<b>Address</b> C/W 20920 ABERDEEN AV JORDAN MN 55352					<b>Use</b> domestic		<b>Status</b> Sealed																																											
<b>Stratigraphy Information</b> <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>CLAY</td><td>0</td><td>24</td><td>BROWN</td><td>MEDIUM</td></tr><tr><td>SANDY CLAY</td><td>24</td><td>61</td><td>BLUE</td><td>MEDIUM</td></tr><tr><td>SAND</td><td>61</td><td>65</td><td>BROWN</td><td>SOFT</td></tr><tr><td>SANDY CLAY</td><td>65</td><td>225</td><td>BLUE</td><td>MEDIUM</td></tr><tr><td>SHALEY LIMESTONE</td><td>225</td><td>260</td><td>GRN/PNK</td><td>HARD</td></tr><tr><td>SHALE</td><td>260</td><td>337</td><td>GRY/GRN</td><td>HARD</td></tr><tr><td>SANDROCK</td><td>337</td><td>360</td><td>GRAY</td><td>MEDIUM</td></tr></table>					Geological Material	From	To (ft.)	Color	Hardness	CLAY	0	24	BROWN	MEDIUM	SANDY CLAY	24	61	BLUE	MEDIUM	SAND	61	65	BROWN	SOFT	SANDY CLAY	65	225	BLUE	MEDIUM	SHALEY LIMESTONE	225	260	GRN/PNK	HARD	SHALE	260	337	GRY/GRN	HARD	SANDROCK	337	360	GRAY	MEDIUM	<b>Well Hydrofractured?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>		<b>From</b>		<b>To</b>	
					Geological Material	From	To (ft.)	Color	Hardness																																									
					CLAY	0	24	BROWN	MEDIUM																																									
					SANDY CLAY	24	61	BLUE	MEDIUM																																									
					SAND	61	65	BROWN	SOFT																																									
					SANDY CLAY	65	225	BLUE	MEDIUM																																									
					SHALEY LIMESTONE	225	260	GRN/PNK	HARD																																									
					SHALE	260	337	GRY/GRN	HARD																																									
					SANDROCK	337	360	GRAY	MEDIUM																																									
					<b>Casing Type</b> Single casing		<b>Joint</b> Welded																																											
<b>Drive Shoe?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		<b>Above/Below</b>																																																
<b>Casing Diameter</b> 4 in. To 295 ft. 11 lbs./ft.		<b>Hole Diameter</b> 8 in. To 295 ft. 4 in. To 360 ft.																																																
<b>Open Hole</b> From 295 ft. To 360 ft.																																																		
<b>Screen?</b> <input type="checkbox"/>		<b>Type</b>		<b>Make</b>																																														
<b>Static Water Level</b> 184 ft. land surface		<b>Measure</b>		06/06/1994																																														
<b>Pumping Level (below land surface)</b>																																																		
<b>Wellhead Completion</b> Pitless adapter manufacturer MONITOR Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																																		
<b>Grouting Information</b> Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To neat cement 3 Cubic yards 10 ft. 295 ft.																																																		
<b>Nearest Known Source of Contamination</b> 30 feet <u>Northeas</u> Direction <u>Septic tank/drain field</u> Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																		
<b>Pump</b> <input type="checkbox"/> Not Installed Date Installed <u>07/20/1994</u> Manufacturer's name AERMOTOR Model Number <u>A12-75</u> HP <u>0.75</u> Volt <u>220</u> Length of drop pipe <u>216</u> ft Capacity <u>12</u> g.p. Typ <u>Submersible</u>																																																		
<b>Abandoned</b> Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																																		
<b>Variance</b> Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No																																																		
<b>Miscellaneous</b> First Bedrock Tunnel City/Lone Rock Fm Aquifer Tunnel City- Last Strat Wonewoc Sandstone Depth to Bedrock 225 ft Located by Minnesota Geological Survey Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table) System UTM - NAD83, Zone 15, Meters X 448844 Y 4943843 Unique Number Verification Information from Input Date 10/09/1995																																																		
<b>Angled Drill Hole</b>																																																		
<b>Well Contractor</b> Hartmann Well Co. 40174 JAECKELS, R. Licensee Business Lic. or Reg. No. Name of Driller																																																		
<b>Remarks</b> SEALED 06-03-2005 BY 00145																																																		

Minnesota Well Index Report

545155

Printed on 11/05/2021  
HE-01205-15

574967

County Scott  
Quad Jordan  
Quad ID 90B

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING REPORT  
Minnesota Statutes Chapter 1031

Entry Date 07/28/1998  
Update Date 08/18/2014  
Received Date

<b>Well Name</b> NELSON, DON					<b>Township</b> 114	<b>Range</b> 24	<b>Dir</b> W	<b>Section</b> 24	<b>Subsection</b> BCDDDC	<b>Well Depth</b> 290 ft.				<b>Depth Completed</b> 290 ft.				<b>Date Well Completed</b> 05/20/1996				
<b>Elevation</b> 805 ft.					<b>Elev. Method</b> CALC FROM 2-FOOT COUNTY DEM					<b>Drill Method</b> Non-specified Rotary				<b>Drill Fluid</b> Bentonite								
<b>Address</b>										<b>Use</b> domestic				<b>Status</b> Active								
<b>Contact</b> 6760 195TH ST W JORDAN MN 55352										<b>Well Hydrofractured?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>				<b>From</b> To								
<b>Well</b> 6760 195TH ST W JORDAN MN										<b>Casing Type</b> Single casing				<b>Joint</b>								
<b>Stratigraphy Information</b>										<b>Drive Shoe?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				<b>Above/Below</b>								
<b>Geological Material</b>					<b>From</b>	<b>To (ft.)</b>	<b>Color</b>	<b>Hardness</b>			<b>Casing Diameter</b>				<b>Weight</b>				<b>Hole Diameter</b>			
SAND					0	30	BROWN	SOFT			4 in. To 218 ft. 11 lbs./ft.				9 in. To 218 ft.							
CLAY					30	75	BLUE	SOFT														
ST. LAWRENCE					75	150	BROWN	HARD														
FRANCONIA					150	275	GREEN	HARD														
SANDROCK FIRM					275	290	WHITE															
										<b>Open Hole</b> From 218 ft. To 290 ft.												
										<b>Screen?</b> <input type="checkbox"/>				<b>Type</b>				<b>Make</b>				
										<b>Static Water Level</b> 80 ft. land surface				Measure				05/20/1996				
										<b>Pumping Level (below land surface)</b> ft. hrs. Pumping at				15 g.p.m.								
										<b>Wellhead Completion</b> Pitless adapter manufacturer				MONITOR				Model				
										<input type="checkbox"/> Casing Protection				<input type="checkbox"/> 12 in. above grade								
										<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)												
										<b>Grouting Information</b> Material				Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified								
										neat cement				Amount 43 Sacks				From To ft. 218 ft.				
										<b>Nearest Known Source of Contamination</b> 75 feet				Northeas Direction				Septic tank/drain field Type				
										Well disinfected upon completion?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
										<b>Pump</b> <input type="checkbox"/> Not Installed				Date Installed				05/22/1996				
										Manufacturer's name				FLINT & WALLING								
										Model Number				10BF-301 HP 0.75				Volt 230				
										Length of drop pipe				126 ft Capacity 10 g.p.				Typ Submersible				
										<b>Abandoned</b> Does property have any not in use and not sealed well(s)?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
										<b>Variance</b> Was a variance granted from the MDH for this well?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
										<b>Miscellaneous</b> First Bedrock				St.Lawrence Formation				Aquifer Tunnel City-				
										Last Strat				Wonewoc Sandstone				Depth to Bedrock 75 ft				
										Located by				Minnesota Geological Survey								
										Locate Method				Digitization (Screen) - Map (1:24,000) (15 meters or								
										System				UTM - NAD83, Zone 15, Meters				X 447655 Y 4946182				
										Unique Number Verification				Address with parcel				Input Date 12/03/2004				
										<b>Angled Drill Hole</b>												
										<b>Well Contractor</b> Searles Well Co.				08258				VOLK, J				
										Licensee Business				Lic. or Reg. No.				Name of Driller				
<b>Remarks</b>																						

684671

County Scott  
Quad Jordan  
Quad ID 90B

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING REPORT  
Minnesota Statutes Chapter 1031

Entry Date  
Update Date 08/18/2014  
Received Date 05/05/2003

<b>Well Name</b> HESSING, BRAD	<b>Township</b> 114	<b>Range</b> 24	<b>Dir</b> W	<b>Section</b> 25	<b>Subsection</b> CADABC	<b>Well Depth</b> 335 ft.	<b>Depth Completed</b> 335 ft.	<b>Date Well Completed</b> 04/21/2003																														
<b>Elevation</b> 839 ft.	<b>Elev. Method</b> CALC FROM 2-FOOT COUNTY DEM				<b>Drill Method</b> Non-specified Rotary	<b>Drill Fluid</b> Bentonite																																
<b>Address</b> Well 6625 OLD HWY 169 BL JORDAN MN 55352						<b>Use</b> domestic	<b>Status</b> Active																															
<b>Stratigraphy Information</b> <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>SAND &amp; GRAVEL</td><td>0</td><td>47</td><td>VARIED</td><td>SOFT</td></tr><tr><td>CLAY</td><td>47</td><td>111</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>SHALE/LIMESTONE</td><td>111</td><td>152</td><td>VARIED</td><td>HARD</td></tr><tr><td>SHALE</td><td>152</td><td>291</td><td>GREEN</td><td>MEDIUM</td></tr><tr><td>SANDSTONE</td><td>291</td><td>335</td><td>GRAY</td><td>MEDIUM</td></tr></table>						Geological Material	From	To (ft.)	Color	Hardness	SAND & GRAVEL	0	47	VARIED	SOFT	CLAY	47	111	GRAY	MEDIUM	SHALE/LIMESTONE	111	152	VARIED	HARD	SHALE	152	291	GREEN	MEDIUM	SANDSTONE	291	335	GRAY	MEDIUM	<b>Well Hydrofractured?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <b>From</b> To		
						Geological Material	From	To (ft.)	Color	Hardness																												
						SAND & GRAVEL	0	47	VARIED	SOFT																												
						CLAY	47	111	GRAY	MEDIUM																												
						SHALE/LIMESTONE	111	152	VARIED	HARD																												
						SHALE	152	291	GREEN	MEDIUM																												
						SANDSTONE	291	335	GRAY	MEDIUM																												
						<b>Casing Type</b> Single casing			<b>Joint</b> Welded																													
						<b>Drive Shoe?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			<b>Above/Below</b>																													
						<b>Casing Diameter</b> 4 in. To 240 ft.			<b>Weight</b> 11 lbs./ft.																													
			<b>Hole Diameter</b> 8 in. To 240 ft. 4 in. To 335 ft.																																			
<b>Open Hole</b> From 240 ft. To 335 ft.																																						
<b>Screen?</b> <input type="checkbox"/> <b>Type</b> Make																																						
<b>Static Water Level</b> 79 ft. null Measure 04/21/2003																																						
<b>Pumping Level (below land surface)</b>																																						
<b>Wellhead Completion</b> Pitless adapter manufacturer MERRILL Model SPK <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)																																						
<b>Grouting Information</b> Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified Material Amount From To neat cement 3 Cubic yards 0 ft. 240 ft.																																						
<b>Nearest Known Source of Contamination</b> <u>67</u> feet <u>Southwes</u> Direction <u>Feedlot</u> Type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																						
<b>Pump</b> <input type="checkbox"/> Not Installed Date Installed Manufacturer's name AERMOTOR Model Number <u>S-12-75</u> HP <u>0.75</u> Volt <u>230</u> Length of drop pipe <u>105</u> ft Capacity g.p. Typ <u>Submersible</u>																																						
<b>Abandoned</b> Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																						
<b>Variance</b> Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																						
<b>Miscellaneous</b> First Bedrock St.Lawrence Formation Aquifer Tunnel City- Last Strat Wonewoc Sandstone Depth to Bedrock 111 ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or System UTM - NAD83, Zone 15, Meters X 448020 Y 4944296 Unique Number Verification Address verification Input Date 12/03/2004																																						
<b>Angled Drill Hole</b>																																						
<b>Well Contractor</b> Gary's Well Co. 70417 SCHULTZ, C. Licensee Business Lic. or Reg. No. Name of Driller																																						

Remarks

Minnesota Unique Well Number					County Scott		MINNESOTA DEPARTMENT OF HEALTH				Entry Date 12/19/2007		
723500					Quad Jordan		WELL AND BORING REPORT				Update Date 05/21/2015		
					Quad ID 90B		Minnesota Statutes Chapter 1031				Received Date		
Well Name SCOTT CARVER					Township 114		Range 24		Dir Section W 24		Subsection BCADDB		
Elevation 823 ft.					Elev. Method		Calc from DEM (USGS 7.5 min or equiv.)						
Address					Use domestic				Status				
					Well Hydrofractured?		Yes <input type="checkbox"/> No <input type="checkbox"/>		From		To		
Stratigraphy Information					Casing Type				Joint				
					Drive Shoe?		Yes <input type="checkbox"/> No <input type="checkbox"/>		Above/Below				
					Casing Diameter		Weight		Hole Diameter				
					4 in. To		142 ft. lbs./ft.		8 in. To		142 ft.		
									3.1 in. To		220 ft.		
					Open Hole		From 142 ft.		To 220 ft.				
					Screen?		<input type="checkbox"/>		Type		Make		
					Static Water Level								
					70 ft.		land surface		Measure		null		
					Pumping Level (below land surface)								
					Wellhead Completion								
					Pitless adapter manufacturer		MAASS		Model				
					<input type="checkbox"/> Casing Protection		<input checked="" type="checkbox"/> 12 in. above grade						
					<input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY)								
					Grouting Information		Well Grouted?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Specified				
					Material		Amount		From		To		
					neat cement		3 Cubic yards		0 ft.		142 ft.		
					Nearest Known Source of Contamination								
					250 feet		West Direction				Sewer Type		
					Well disinfected upon completion?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
					Pump		<input type="checkbox"/> Not Installed		Date Installed		07/30/2007		
					Manufacturer's name		MEYERS						
					Model Number		HP 3		Volt		220		
					Length of drop pipe		126 ft		Capacity		35 g.p. Typ Submersible		
					Abandoned								
					Does property have any not in use and not sealed well(s)?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
					Variance								
					Was a variance granted from the MDH for this well?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
					Miscellaneous								
					First Bedrock				Aquifer				
					Last Strat				Depth to Bedrock		ft		
					Located by		Minnesota Department of Health						
					Locate Method		GPS SA Off (averaged) (15 meters)						
					System		UTM - NAD83, Zone 15, Meters		X 447664		Y 4946399		
					Unique Number Verification		Info/GPS from data		Input Date		12/19/2007		
					Angled Drill Hole								
					Well Contractor								
					Mineral Service Plus, LLC		1442		GREG SEGLER				
					Licensee Business		Lic. or Reg. No.		Name of Driller				
Minnesota Well Index Report					723500						Printed on 11/05/2021		
											HE-01205-15		

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# **Appendix B**

## **DNR Natural Heritage Database Search**

**(to be provided upon receipt)**

**Pieper Residential Development EAW**

Scott County, Minnesota

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# **Appendix C**

**State Historic Preservation Office**

**Correspondence**

**Pieper Residential Development EAW**

Scott County, Minnesota

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## Sara Nelson

---

**From:** MN\_MNIT\_Data Request SHPO <DataRequestSHPO@state.mn.us>  
**Sent:** Tuesday, October 12, 2021 3:15 PM  
**To:** Ryan Grohnke  
**Subject:** RE: Database Request\_Pieper  
**Attachments:** Archaeology.xls; History.xls

Hello Ryan,

Please see attached.

Jim



SHPO Data Requests  
Minnesota State Historic Preservation Office  
50 Sherburne Avenue, Suite 203  
Saint Paul, MN 55155  
(651) 201-3299  
[datarequestshpo@state.mn.us](mailto:datarequestshpo@state.mn.us)

**Notice:** This email message simply reports the results of the cultural resources database search you requested. The database search is only for previously known archaeological sites and historic properties. **IN NO CASE DOES THIS DATABASE SEARCH OR EMAIL MESSAGE CONSTITUTE A PROJECT REVIEW UNDER STATE OR FEDERAL PRESERVATION LAWS** – please see our website at <https://mn.gov/admin/shpo/protection/> for further information regarding our Environmental Review Process.

Because the majority of archaeological sites in the state and many historic/architectural properties have not been recorded, important sites or properties may exist within the search area and may be affected by development projects within that area. Additional research, including field surveys, may be necessary to adequately assess the area's potential to contain historic properties or archaeological sites.

Properties that are listed in the National Register of Historic Places (NRHP) or have been determined eligible for listing in the NRHP are indicated on the reports you have received, if any. The following codes may be on those reports:

**NR** – National Register listed. The properties may be individually listed or may be within the boundaries of a National Register District.

**CEF** – Considered Eligible Findings are made when a federal agency has recommended that a property is eligible for listing in the National Register and MN SHPO has accepted the recommendation for the purposes of the Environmental Review Process. These properties need to be further assessed before they are officially listed in the National Register.

**SEF** – Staff eligible Findings are those properties the MN SHPO staff considers eligible for listing in the National Register, in circumstances other than the Environmental Review Process.

**DOE** – Determination of Eligibility is made by the National Park Service and are those properties that are eligible for listing in the National Register, but have not been officially listed.

**CNEF** – Considered Not Eligible Findings are made during the course of the Environmental Review Process. For the purposes of the review a property is considered not eligible for listing in the National Register. These properties may need to be reassessed for eligibility under additional or alternate contexts.

Properties without NR, CEF, SEF, DOE, or CNEF designations in the reports may not have been evaluated and therefore no assumption to their eligibility can be made. Integrity and contexts change over time, therefore any eligibility determination made ten (10) or more years from the date of the current survey are considered out of date and the property will need to be reassessed. If you require a comprehensive assessment of a project's potential to impact archaeological sites or historic/architectural properties, you may need to hire a qualified archaeologist and/or historian. If you need assistance with a project review, please contact Kelly Gragg-Johnson, Environmental Review Specialist @ 651-201-3285 or by email at [kelly.graggjohnson@state.mn.us](mailto:kelly.graggjohnson@state.mn.us).

The Minnesota SHPO Archaeology and Historic/Architectural Survey Manuals can be found at <https://mn.gov/admin/shpo/identification-evaluation/>.

Given the Governor's implementation of [Stay Safe MN](#), SHPO staff will continue to work remotely and be available via [phone and email](#), and the SHPO office will be closed to visitors and unable to accommodate in-person research and deliveries. Mail is being delivered to the office via USPS, FedEx and UPS, however, staff have limited weekly access to sort and process mail. Our office will continue to take file search requests via [DataRequestSHPO@state.mn.us](mailto:DataRequestSHPO@state.mn.us). Check [SHPO's webpage](#) for the latest updates and we thank you for your continued patience.



---

**From:** Ryan Grohnke <Ryan.Grohnke@westwoodps.com>  
**Sent:** Thursday, October 7, 2021 6:43 PM  
**To:** MN\_MNIT\_Data Request SHPO <DataRequestSHPO@state.mn.us>  
**Subject:** Database Request\_Pieper

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Hello again,

Could you do a database search for the following:

Township 114, Range 23, Sections 18,19, 30, 31

Township 114, Range 24, Sections 13, 14, 23, 24, 25,26, 35, 36

Thank you,  
Ryan

## **Ryan Grohnke**

**Cultural Resources Manager**  
ryan.grohnke@westwoodps.com

**direct** (952) 906-7403  
**main** (952) 937-5150  
**cell** (612) 209-3352

**Westwood**  
12701 Whitewater Drive, Suite 300  
Minnetonka, MN 55343

**westwoodps.com**  
(888) 937-5150

COUNTY	SITENUM	SITENAME	TOWNS	RANGE	SECT	XQUARTERS	ACRE	WORKT	DESCRIPT	TRADIT	CONTE	ReportNum	Natr	CEF	DOE
Scott															
	21SC0017		114	23	18	E-NW	0	1	EW	W-1					
	21SCac		114	23	19	SE	0	1	AS						
	21SCe	Brentwood	114	23	18	W-SE,W-E- SE,W-E-E-SE	0	7	HD		EA-1				
		Brentwood	114	23	18	E-E-SE	0	7	HD		EA-1				
	21SCt		114	23	19	C-E	0	7	HD		EA-1				
	21SCv	P.P. Wells?	114	23	30	C-N-NE	0	7	HD		RA-1				

COUNTY	CITYTWP	INVENTNUM	PROPNAME	ADDRESS	TOWN	RAN	SEC	QUARTERS	USGS	REPORTNU	NRHP	CEF	DOE
Multiple													
	Multiple												
		XX-ROD-044	Current TH 169	From Blue Earth Co	114	23	18	SE-SE					
		XX-ROD-044	Current TH 169		114	23	19	NE-NE					
		XX-ROD-044	Current TH 169		114	23	19	NE-NW					
		XX-ROD-044	Current TH 169		114	23	19	NE-SE					
		XX-ROD-044	Current TH 169		114	23	19	NW-NE					
		XX-ROD-044	Current TH 169		114	23	19	NW-NW					
		XX-ROD-044	Current TH 169		114	23	19	SW-NW					
		XX-ROD-044	Current TH 169		114	23	19	SE-SE					
		XX-ROD-044	Current TH 169		114	23	19	SE-NE					
		XX-ROD-044	Current TH 169		114	23	30	SW-NW					
		XX-ROD-044	Current TH 169		114	23	30	SE-NW					
		XX-ROD-044	Current TH 169		114	23	30	NW-SW					
		XX-ROD-044	Current TH 169		114	23	30	NW-NE					
		XX-ROD-044	Current TH 169		114	23	30	NE-NE					
		XX-ROD-044	Current TH 169		114	23	30	SW-NE					
		XX-ROD-044	Current TH 169		114	24	23	SE-SE					
		XX-ROD-044	Current TH 169		114	24	24	NW-SE					
		XX-ROD-044	Current TH 169		114	24	24	SE-NE					
		XX-ROD-044	Current TH 169		114	24	24	SE-SW					
		XX-ROD-044	Current TH 169		114	24	24	SW-NE					
		XX-ROD-044	Current TH 169		114	24	24	SW-SW					
		XX-ROD-044	Current TH 169		114	24	24	NE-SW					
Multiple													
	Multiple												
		XX-ROD-044	Current TH 169	From Blue Earth Co	114	24	25	SE-NE					
		XX-ROD-044	Current TH 169		114	24	25	NE-SE					
		XX-ROD-044	Current TH 169		114	24	25	NE-SW					
		XX-ROD-044	Current TH 169		114	24	25	SW-NE					
		XX-ROD-044	Current TH 169		114	24	25	SW-SW					
		XX-ROD-044	Current TH 169		114	24	25	NW-SE					
		XX-ROD-044	Current TH 169		114	24	25	NW-SW					
		XX-ROD-044	Current TH 169		114	24	26	NE-NE					
		XX-ROD-044	Current TH 169		114	24	26	SE-SE					



COUNTY	CITYTWP	INVENTNUM	PROPNAME	ADDRESS	TOWN	RAN	SEC	QUARTERS	USGS	REPORTNU	NRHP	CEF	DOE
		XX-ROD-044	Current TH 169		114	24	26	SE-SW					
		XX-ROD-044	Current TH 169		114	24	26	SW-NW					
		XX-ROD-044	Current TH 169		114	24	26	SW-SE					
		XX-ROD-044	Current TH 169		114	24	26	SE-NW					
		XX-ROD-044	Current TH 169		114	24	26	NE-NW					
		XX-ROD-044	Current TH 169		114	24	26	SW-SW					
		XX-ROD-044	Current TH 169		114	24	26	NW-NE					
Scott													
	Jordan												
		SC-JRC-001	Jordan Historic District	Water St. & South Broadway	114	23	19	NE-SE	Jordan West		Y		
		SC-JRC-002	Jordan Brewery Ruins	415 Broadway St S	114	23	19	SE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-003	house	327 Mill St. S.	114	23	19	SE-NE-SE	Jordan	SC-79-1H			
		SC-JRC-004	house	xx Broadway S.	114	23	19	SE-NE-SE	Jordan	SC-79-1H			
Scott													
	Jordan												
		SC-JRC-005	hotel	1xx 1st St.	114	23	19	NW-NE-SE	Jordan	SC-79-1H			
		SC-JRC-006	log building	xx Varner St.	114	23	19	NW-NE-SE	Jordan	SC-79-1H			
		SC-JRC-007	commercial building	xx 1st St.	114	23	19	NW-NE-SE	Jordan	SC-79-1H			
		SC-JRC-008	house	215 Mill St. N.	114	23	19	NE-NE-SE	Jordan	SC-79-1H			
		SC-JRC-009	house	4xx 1st St. E.	114	23	19	NE-NE-SE	Jordan	SC-79-1H			
		SC-JRC-010	house	316-20 2nd St. E.	114	23	19	NE-NE-SE	Jordan	SC-79-1H			
		SC-JRC-011	house	101 Broadway S.	114	23	19	SE-SE-NE	Jordan	SC-79-1H			
		SC-JRC-012	house	100 Broadway N.	114	23	19	SE-SE-NE	Jordan	SC-79-1H			
		SC-JRC-013	Jordan City Hall	xxx 2nd St. E.	114	23	19	SW-SE-NE	Jordan	SC-79-1H			
		SC-JRC-014	house	100 2nd St. E.	114	23	19	SW-SE-NE	Jordan	SC-79-1H			
		SC-JRC-015	house	105 Varner St. N.	114	23	19	NW-NE-SE	Jordan	SC-79-1H			
		SC-JRC-016	house	207 Varner St. N.	114	23	19	NW-NE-SE	Jordan	SC-79-1H			
		SC-JRC-017	house	104 2nd St. W.	114	23	19	SW-SE-NE	Jordan	SC-79-1H			
		SC-JRC-018	house	117 2nd St. W.	114	23	19	SW-SE-NE	Jordan	SC-79-1H			
		SC-JRC-019	house	116 3rd St. W.	114	23	19	SW-SE-NE	Jordan	SC-79-1H			
		SC-JRC-020	St. John's School	2xx Broadway N.	114	23	19	SE-SE-NE	Jordan	SC-79-1H			
		SC-JRC-021	St. John's Catholic Church	xxx 2nd St. E.	114	23	19	SE-SE-NE	Jordan West	SC-79-1H			
		SC-JRC-022	house	3xx 2nd St. E.	114	23	19	SE-SE-NE	Jordan	SC-79-1H			

COUNTY	CITYTWP	INVENTNUM	PROPNAME	ADDRESS	TOWN	RAN	SEC	QUARTERS	USGS	REPORTNU	NRHP	CEF	DOE
		SC-JRC-023	Immanuel United Methodist Church	105 3rd St. E.	114	23	19	SW-SE-NE	Jordan West	SC-79-1H			
		SC-JRC-024	Jordan High School	xxx Varner St.	114	23	19	NW-SE-NE	Jordan	SC-79-1H			
		SC-JRC-025	Edward C. Gram House	20 1st St. W.	114	23	19	NE-NW-SE	Jordan West	SC-79-1H			
		SC-JRC-026	house	3xx 2nd St. W.	114	23	19	SE-SW-NE	Jordan	SC-79-1H			
		SC-JRC-027	house		114	23	19	SE-SW-NE	Jordan	SC-79-1H			
Scott													
	Jordan												
		SC-JRC-028	house	313 2nd St. W.	114	23	19	SE-SW-NE	Jordan	SC-79-1H			
		SC-JRC-029	house	411 Broadway N.	114	23	19	SE-NE-NE	Jordan	SC-79-1H			
		SC-JRC-030	house	313 4th St. W.	114	23	19	NW-SW-NE	Jordan	SC-79-1H			
		SC-JRC-031	railroad building	5xx Rice St. N.	114	23	19	SW-NE-NE	Jordan	SC-79-1H			
		SC-JRC-032	farmhouse	off U.S. Hwy. 169	114	23	19	SE-SE-NW	Jordan	SC-79-1H			
		SC-JRC-033	house	512 Broadway S.	114	23	19	NW-SE-SE	Jordan	SC-79-1H			
		SC-JRC-034	Jordan Sawmill	215 Sawmill Rd.	114	23	30	SE-NE-NE	Jordan	SC-79-1H			
		SC-JRC-035	house		114	23	30	SW-NE-NE	Jordan	SC-79-1H			
		SC-JRC-036	Foss and Wells House	613 Broadway St. S.	114	23	30	SW-NE-NE	Jordan West	SC-79-1H	Y		
		SC-JRC-037	Klinkhammer Drugs and Books	208 Water St.	114	23	19	NW-NE-SE	Jordan West	SC-79-1H	Y		
		SC-JRC-038	Scott County Bank	216 Water St.	114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-039	Ritchell's Bakery	217 Water St.	114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-040	Nicolin Mansion	221 Broadway St. S.	114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-041	Ruppert's Bar	224 Water St.	114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-042	Harness Shop	225 Water St.	114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-043	apartment	226 Water St.	114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-044	Nicolin Opera House	231 Broadway St. S.	114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-045	Peoples State Bank	234 Broadway St. S.	114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-046	Hardware Store/Farrie	236-38 Water St.	114	23	19	SE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-047	Kehrer Building	301 Broadway St. S.	114	23	19	SE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-048	Hennen Electric	3xx Broadway St.	114	23	19	SE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-049	Jordan Post Office	2xx Water St.	114	23	19	NW-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-050	Printing Shop		114	23	19	NE-NE-SE	Jordan	SC-79-1H	Y		

COUNTY	CITYTWP	INVENTNUM	PROPNAME	ADDRESS	TOWN	RAN	SEC	QUARTERS	USGS	REPORTNU	NRHP	CEF	DOE
Scott													
	Jordan												
		SC-JRC-051	Millinery Shop	2xx Water St.	114	23	19	SE-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-052	log building		114	23	19	NW-NE-SE	Jordan	SC-79-1H	Y		
		SC-JRC-053	Jordan Fairgrounds	Rice St. over the	114	23	19	NW-NE-SE	Jordan	SC-2012-2H		Y	
		SC-JRC-053	Jordan Fairgrounds		114	23	19	NW-NE-SE	Jordan	SC-2010-1H		Y	
		SC-JRC-054	Bridge 6803	US 169 .1 mi W of	114	23	19	NW-NE	Jordan				
		SC-JRC-055	Bridge 6804	US 169 at Jct. TH 21	114	23	18	NE-NE	Jordan				
		SC-JRC-056	6859		114	23	19	SE-NW	Jordan				
		SC-JRC-057	70506		114	23	30	NE-NE	Jordan				
		SC-JRC-058	7286		114	23	19	NW-SE	Jordan				
		SC-JRC-059	Bridge 9123	TH 21 .5 mi S of Jct.	114	23	19	SE-SE	Jordan				
		SC-JRC-060	9124		114	23	30	NE-NE	Jordan				
		SC-JRC-061	Jordan Wayside	E side of MN 31 at	114	23	30	NW-NE-NE	Jordan	XX-2020-9H			
		SC-JRC-061	Jordan Wayside		114	23	30	NW-NE-NE	Jordan	XX-2020-8H			
	Multiple												
		XX-ROD-047	Former TH 5 (Scott		114	23	18	SE-SE					
		XX-ROD-047	Former TH 5 (Scott		114	23	19	SE-NE					
		XX-ROD-047	Former TH 5 (Scott		114	23	19	NE-SE					
		XX-ROD-047	Former TH 5 (Scott		114	23	19	NE-NE					
		XX-ROD-047	Former TH 5 (Scott		114	23	19	SE-SE					
		XX-ROD-047	Former TH 5 (Scott		114	23	30	SE-NW					
		XX-ROD-047	Former TH 5 (Scott		114	23	30	SW-NE					
		XX-ROD-047	Former TH 5 (Scott		114	23	30	NW-NE					
Scott													
	Multiple												
		XX-ROD-047	Former TH 5 (Scott		114	23	30	NW-SW					
		XX-ROD-047	Former TH 5 (Scott		114	23	30	NE-NE					
		XX-ROD-047	Former TH 5 (Scott		114	23	30	SW-NW					
		XX-ROD-047	Former TH 5 (Scott		114	24	25	SW-SW					
		XX-ROD-047	Former TH 5 (Scott		114	24	25	NE-SE					
		XX-ROD-047	Former TH 5 (Scott		114	24	25	NE-SW					
		XX-ROD-047	Former TH 5 (Scott		114	24	25	NW-SE					
		XX-ROD-047	Former TH 5 (Scott		114	24	25	NW-SW					
		XX-ROD-047	Former TH 5 (Scott		114	24	25	SE-NE					

COUNTY	CITYTWP	INVENTNUM	PROPNAME	ADDRESS	TOWN	RAN	SEC	QUARTERS	USGS	REPORTNU	NRHP	CEF	DOE
		XX-ROD-047	Former TH 5 (Scott		114	24	25	SW-NE					
		XX-ROD-047	Former TH 5 (Scott		114	24	26	SW-SW					
		XX-ROD-047	Former TH 5 (Scott		114	24	26	SW-SE					
		XX-ROD-047	Former TH 5 (Scott		114	24	26	SE-SE					
		XX-ROD-047	Former TH 5 (Scott		114	24	26	SE-SW					
	Sand												
		SC-SCK-003	house	off Twp. Rd.	114	23	18	SW-NE-NE	Jordan	SC-79-1H			
	St. Lawrence Twp.												
		SC-SLW-003	St. Lawrence Town	off Co. Hwy. 59	114	24	26	NE-SE-SW	Jordan	SC-79-1H			
		SC-SLW-004	farm house	off Co. Hwy. 66	114	24	26	NW-SE-SE	Jordan	SC-79-1H			

# **Appendix D**

## **Traffic Study**

**Pieper Residential Development EAW**  
Scott County, Minnesota

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## MEMORANDUM

**Date:** June 22, 2020  
**To:** Tom Nikunen, ICMA-MN, Jordan City Administrator  
**From:** Ross Tillman, P.E.  
Chao Wu, EIT  
**Subject:** Pieper Property Development Review

### Introduction

An area of potential residential development is proposed for the Pieper Property along the west side of Aberdeen Ave between Sunset Dr and County Road (CR) 66. This memorandum provides a review of the the Pieper Property Development and the associated impacts to public infrastructure for all modes of travel. See **Figure 1** below for the project location map. The proposed development includes 401 residential units, as shown on the site plan included in the **Appendix**.

**Figure 1: Project Location Map**



## Vehicle Traffic Volumes

Daily Traffic or peak hour volumes for the following intersections were collected in May 2019.

- CR 66 and Prospect Pointe Rd
- CR 66 and Aberdeen Ave
- Aberdeen Ave and Ridge St
- Aberdeen Ave and Beaumont Blvd

Existing peak hour turning movement counts are attached in **Figure 1** in the **Appendix**.

## Pedestrian Traffic Volumes

Daily pedestrian volumes of the following intersections were also collected in May 2019. Daily pedestrian volumes are summarized in **Table 1**.

**Table 1: Daily Pedestrian Volumes**

Intersection	North Leg	East Leg	South Leg	West Leg
CR 66 and Aberdeen Ave	0	32	25	0
Aberdeen Ave and Sunset Dr	0	0	2	0

## Trip Generation

The ITE Trip Generation Manual 10<sup>th</sup> Edition was used to determine the new trips generated in the area due to the development. The residential units were coded as ITE Code 210. See Table 2 for detailed generation information.

**Table 2: Trip Generation Summary**

Single-Family Detached Housing		401.00	Dwelling Units		ITE Code	210
	Average Rate	# Trips*	% enter	% exit	entering	exiting
AM	0.74	290	25%	75%	72	217
PM	0.99	385	63%	37%	243	143
Weekday	9.44	3731	50%	50%	1866	1866

\*Computed with fitted curve equations, not averages

Trips were distributed to the network through assumptions as to which entrance to the development drivers were likely to use based on home location. See the site plan in the **Appendix**.

## Operations Analysis

Traffic operations and queues for each movement were analyzed based on the existing and future Pieper Property development. Both the No Build and Build 2040 conditions account for additional traffic from school enrollment growth, which is estimated to be an 22% increase from 2019 to 2040. No Build implies no residential development of the Pieper Property while Build implies the full build-out of the residential development. **Figures 2 and 3** in the **Appendix** detail the volumes used.

### 2019 No Build:

- All intersections operate with an intersection LOS A during all peak hours.
- Queues are acceptable at all intersections.
- Detailed LOS and queues are included in the **Appendix**.



#### 2040 No Build

- All intersections are anticipated to operate at LOS B or better except for the intersection at Aberdeen Ave and West Elementary School Access. It is anticipated to operate with an intersection LOS D during the AM peak hour due to school drop off operations backing up onto Aberdeen Ave.
- The queues for school drop off operations during the AM peak hour are anticipated to extend on to Aberdeen Ave. The northbound maximum queues are anticipated to be 250 feet and southbound maximum queues are anticipated to be 300 feet during the AM peak hour due to these backups.
- Detailed LOS and queues are included in the **Appendix**.

#### 2040 Build

The 2040 Build condition accounts for school mitigation which is anticipated to retain the drop off back-ups on school property, avoiding impacts to Aberdeen Ave.

- All intersections are anticipated to operate with an intersection LOS A during all peak hours.
- Queues are acceptable at all intersections.
- Detailed LOS and queues are included in the **Appendix**.

#### Aberdeen Ave Access Management Review

Aberdeen Ave is functionally classified as a Major Collector. The *Minimum Access Spacing Guidelines Plan* from the Scott County 2040 Comprehensive Plan were utilized as the basis for an access review of this property. Based on these guidelines, a minimum of 1/8 mile spacing shall be maintained between local streets and collectors, and 1/4 mile spacing between collectors/arterials. The provided site plan appears to adhere to these access spacing guidelines along Aberdeen Ave.

A detailed access management figure is attached in **Appendix**. This figure illustrates the recommended access spacing and type of access. Collector/Arterial access points should be the focus of the majority of site traffic are locations where enhanced traffic control would be considered if required due to operational or safety issues. Local access points should be viewed as secondary accesses, where enhanced traffic control is not an option. These accesses could be the focus of access control for certain movements if required for operational or safety issues.

#### Safety Analysis

Crash Data was obtained from data administered by MnDOT for a three-year time period (2015-2017). A summary of the crashes at the intersections where crashes occurred are shown in **Table 3**.

**Table 3: Crash Summary**

Crash Details 01/01/2015 – 12/31/2017								
Intersections	Total Crashes	F	A	B	C	PDO	Right Angle Crashes	Head On
Aberdeen Ave and West Elementary School Access	1					1		1
CR 66 and Aberdeen Ave	2					2	1	1

The crash reports indicate there is no significant crash issues of the study area. All intersections within the study area have a lower crash rate than the statewide average.

#### Turn Lane Needs

An analysis of turn lanes needs was completed based on operational results, safety analysis, and the access management guidelines. Turn lanes can be implemented to mitigate against concerns caused by any of these factors due to existing or future conditions.

Right turn lanes should be installed and could provide a benefit per the MnDOT Access Management Manual, Figures 3.40 and 3.41. The installation of right turn lanes at all proposed access to the Pieper property is also consistent with existing access conditions along the roadway serving residential developments.

There are multiple resources available for consideration of whether left turn lanes are a required element of a roadway's design. However, these resources do not perfectly apply to this specific roadway volume, speed, or setting. The most relevant external resources consulted are summarized as follows:

- The Highway Safety Manual states that left turn lane installations generally reduce crashes by 4 percent to 58 percent, while right turn installation can reduce crashes by 4 percent to 41 percent. These percentages are measured as a reactive measure, comparing crash reductions after installation of a left turn lane to the same location where one did not exist. One could reasonably expect a reduction in future in future crashes at accesses with left turn lanes compared to the same location without a left turn lane. Factors increasing the benefit of turn lanes include vehicle speed, volume, and setting (urban versus rural, building setbacks, etc.) which is similarly tied to vehicle speed.
- The National Cooperative Highway Research Program (NCHRP) Report 745 provides guidance for installing left turn lanes that most nearly matches Aberdeen, but not exactly. Per Table 3 of this reference document which is specific to urban/suburban arterials, the main entrance to the development on Aberdeen exceeds the threshold for installation of a left turn lane based on the PM peak hour volumes (45 left turns and over 150 vehicles per hour per lane on Aberdeen). However, Aberdeen Avenue is not designated as a current or future arterial, and therefore this guidance is not a true fit and may be overstating the need for a left turn lane. Table 80 in NCHRP 745 shows threshold volumes for left turners compared to mainline hourly traffic which generate a benefit to cost ratio above 1.0 for installation of a left turn lane. In all cases for access turning into the development from Aberdeen Ave or CR 66, left turn lanes are 'warranted' from a benefit-cost perspective.
- The MnDOT Access Management Manual contains thresholds that apply to trunk highways with speed above 45 miles per hour (as opposed to Aberdeen Avenue, which is posted as 30 miles per hour). Left turn lanes would not be warranted per the MnDOT Access Management Manual.

More specific to the Aberdeen Avenue corridor, the existing elementary school district access could most use geometric safety improvements. Installation of a southbound left turn lane at this location could be beneficial, moreso than other left turning movements along the corridor, however stacking issues at the site should first be resolved.

## **Conclusion**

The Pieper Property development as planned would construct 401 single family homes, adding 3731 trips per day to the transportation network. Traffic operations were analyzed for various scenarios to compare build traffic to no build traffic, thereby identifying issues caused by the added development trips. In both the build year and 20-year forecasted scenarios, traffic operations are satisfactory. No significant degradation in operations is expected at the intersections analyzed with the development in place given the density of trips generated, the number of accesses identified, and the existing travel patterns along CR 66 and Aberdeen Ave.

Crash history was analyzed as well, taking into account the previous three years of history to identify any existing trends. Within the study area, no intersections exhibited significant trends and all intersections are operating within the expected range of crash rates.

Access spacing was also considered, especially along Aberdeen Ave. Aberdeen Ave is a future Major Collector roadway and therefore future access along this roadway needs to match this function. Accesses identified in the preliminary site plan should match into this framework with local access at 1/8 mile minimum spacing and collector type access (more major) at a 1/4 mile minimum spacing. CR 66 is classified as a Major Collector roadway, and therefore similar access spacing guidelines should be met. The site plan appears to meet these guidelines

Lastly, turn lane needs were examined. The ultimate vision (at time of reconstruction) for access points along Aberdeen Ave should include both right and left turn lanes. Aberdeen Avenue was reclaimed and resurfaced in 2012 and its next major rehabilitation or reconstruction due to pavement condition is anticipated approximately between 2030 and 2040. At a minimum, right turn lanes should be installed along Aberdeen Ave and CR 66 based on their relatively low cost and lack of need to impact the mainline Aberdeen Avenue pavement. Until roadway reconstruction occurs, recognizing the mixture of opinions provided by industry guidance documents referenced above, the value of adding left turn lanes may not yield sufficient value to demand their installation. The addition of turn lanes will serve as a proactive safety measure to mitigate against any future safety issues that could arise due to increasing volumes in combination with turning traffic into the site, though that is not explicitly tied to this site development.